

THE MEDICAL JOURNAL OF AUSTRALIA

VOL. II.—10TH YEAR.

SYDNEY: SATURDAY, OCTOBER 27, 1923.

No. 17.

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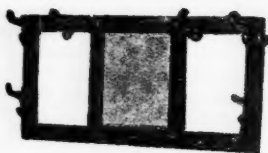
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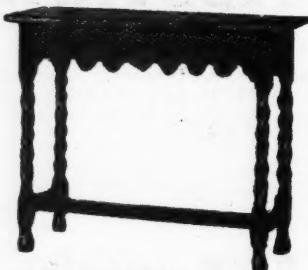
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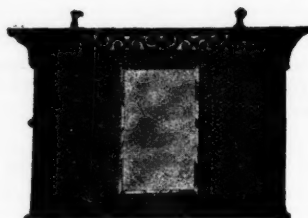
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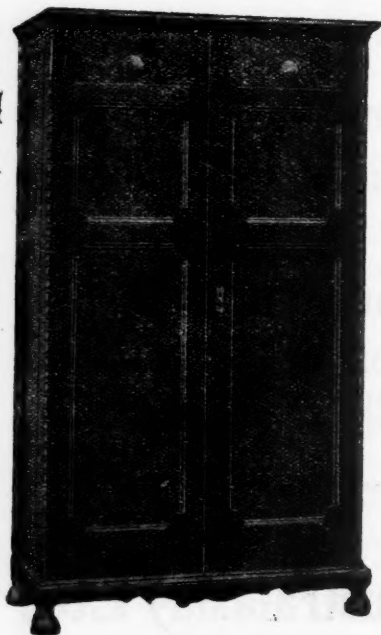
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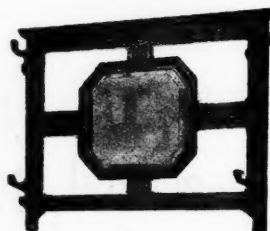
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Table of Contents

ORIGINAL ARTICLES—	PAGE.	BRITISH MEDICAL ASSOCIATION NEWS—	PAGE.
"Blood Transfusion in Civil Practice," by A. W. HOLMES & COURT, M.D., M.R.C.P., and GEORGE BELL, O.B.E., M.B., Ch.M., with a Note on the Practical Testing of Donors, by A. H. TEBBUTT, D.S.O., B.A., M.B., D.P.H.	427	Scientific	448
"Mental Deficiency Among the Criminal Insane," by S. J. MINOGUE, M.B., Ch.M.	438	Unveiling of War Memorial	450
REPORTS OF CASES—		Nominations and Elections	451
"Diaphragmatic Hernia," by T. W. LIPSCOMB, M.B., Ch.M.	440	CONGRESS NOTES—	
REVIEWS—		The Australasian Medical Congress (British Medical Association)	451
Oral Surgery	442	MEDICO-LEGAL—	
History of Brain Surgery	442	Lillian Cooper Fund	452
LEADING ARTICLES—		POST-GRADUATE WORK—	
The Prophylaxis of Venereal Disease	443	November Course in Melbourne	452
CURRENT COMMENT—		Post-Graduate Course in Adelaide	453
Heterotopic Tumours	444	OBITUARY—	
ABSTRACTS FROM CURRENT MEDICAL LITERATURE—		Paul Wilhelm Rudolph Boelke	454
Morbid Anatomy	446	MEDICAL APPOINTMENTS VACANT, ETC.	454
Morphology	447	MEDICAL APPOINTMENTS: IMPORTANT NOTICE	454
		DIARY FOR THE MONTH	454
		EDITORIAL NOTICES	454

BLOOD TRANSFUSION IN CIVIL PRACTICE.¹

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With a Note on the Practical Testing of Donors.

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SUMMARY

- Introduction.
- Conditions in which transfusion may be indicated.
- Selection of blood donors.
- Technique of transfusion.
- Apparatus.
- Case records.

INTRODUCTION.

THE history of the transfusion of blood is amongst the most fascinating of medical records. There is probably no single therapeutic measure in the whole

of the practice of medicine which has so waxed and waned in popularity through the centuries! The historical aspect of the subject is, however, beyond the scope of the present paper. Suffice it to say that during the early years of the present century blood transfusion had begun to attract renewed attention from numerous workers in America and elsewhere. Although recognition of the essential facts of compatibility and the work of Landsteiner, Jansky and later of Moss on the classification of blood groups had removed many of the difficulties, it remained for the exigencies of the great war to establish transfusion firmly in British medical practice. From the years 1916-1917 onwards the application of blood transfusion as a therapeutic measure has received increasing attention in all lands.

In the year 1919 a "resuscitation team" consisting of the writers of the present papers, were appointed at the Sydney Hospital to carry out transfusion in urgent cases.

The following notes are derived chiefly from the experience gained in this way during the last four years both in hospital service and in private practice.

CONDITIONS IN WHICH TRANSFUSION MAY BE INDICATED.

In civil practice the conditions in which transfusion has been found applicable, may be classified under the following headings:

¹ Read at a meeting of the New South Wales Branch of the British Medical Association on August 30, 1923.

- (i.) Traumatic Hæmorrhage:
Wounds involving large blood vessels,
Injuries characterized by rapid ex-
sanguination.
- (ii.) Hæmorrhagic emergencies of obstetric practice.
- (iii.) Hæmorrhage associated with pathological conditions:
Post-operative secondary hæmorrhage,
Peptic ulcer, typhoid ulcer, hæmatemesis
et cetera.
- (iv.) Diseases of the blood:
Hæmophilia,
Hæmorrhagic disease of the new-born,
Hæmolytic anæmia.
- (v.) Infective conditions:
Septic infection,
Acute infective diseases.
- (vi.) Severe burns, carbon monoxide and other poisoning.

These several groups will be briefly discussed.

Traumatic Hæmorrhage.

In cases of this group where blood loss has been rapid or severe, transfusion stands alone as a remedial measure.

The problem is simply to replace blood lost. Obviously the bleeding should, if possible, be arrested before an attempt is made to restore blood volume. The results in these cases are so striking and satisfactory that no doubt can be entertained that transfusion is the efficient remedy. When hæmorrhage has been so severe that 1.5 to 3 litres have been lost (the latter figure representing on an average almost half the volume of blood in the body), the natural restorative powers are likely to prove inefficient unless means are taken to restore rapidly the blood volume. When there is a state of profound shock coexistent, the matter becomes more complicated. In such cases the benefit which follows transfusion, is usually dependent in large measure upon the degree of coincident exsanguination.

In severe injuries associated with hæmorrhage and shock the resuscitation period during which the phenomena of shock predominate, may be shortened by transfusion, thus minimizing the tissue damage which results from prolonged anæmia and lessening the likelihood of sepsis. Operative performances may thus be undertaken earlier than would otherwise be possible.

Hæmorrhagic Emergencies of Obstetric Practice.

In conditions such as those arising in cases of *placenta prævia*, accidental hæmorrhage, rupture of the uterus, ruptured ectopic gestation and severe *post partum* hæmorrhage the results of transfusions have proved most gratifying and satisfactory.

Details of successful cases follow later.

Hæmorrhage Associated with Pathological Conditions.

In severe hæmorrhage from peptic ulcer or other causes the addition of fresh blood has been advocated as a means of restoration and of bringing about arrest of hæmorrhage. This has on occasion proved efficacious, but when circumstances permit and especially when operative performance

is contemplated, it appears to be more logical to supply fresh blood to replace the blood lost after the actual arrest of bleeding or as an immediate preliminary to operation.

In certain instances when a patient is apparently *in extremis* it may be deemed necessary to do the transfusion in order that operation may be the more safely undertaken. We are, however, strongly of opinion that in general it is a sound principle that the arrest of hæmorrhage should come first and the replacement of blood loss second in such cases. In hæmorrhage from typhoid ulcer and other conditions associated with toxæmia the addition of fresh serum and corpuscles may be the means of exalting coagulability as well as of replacing blood lost. Our personal experience is, however, insufficient to formulate conclusions in this class of cases.

Diseases of the Blood.

In these conditions blood may be transfused for the purpose of arresting hæmorrhage as well as to replace blood lost.

Hæmophilia.

In the severe hæmorrhages of hæmophilia transfusion of healthy blood is almost invariably successful in causing arrest of bleeding. The added blood appears to supply the substance deficient in the patient. Not infrequently the tendency to bleed recurs after an interval of a few days and further addition of blood becomes necessary. This point is admirably illustrated in the case of a hæmophilic boy successfully operated on for suppurative appendicitis, previously reported in detail by Dr. Hipsley (*THE MEDICAL JOURNAL OF AUSTRALIA*, May 26, 1923).

Hæmorrhagic Disease of the New-Born.

Various observations have been recorded establishing the success of transfusion in this condition. In the period under review we have not encountered a case of this nature. It may be noted in passing that, according to recent observations, the maternal or paternal blood, although usually suitable, is not necessarily compatible with the blood of the infant. The risk of incompatibility is apparently so slight that in emergency it may be ignored.

Hæmolytic Anæmia.

This subject is beset with difficulty in that the term "pernicious anæmia" is loosely used to cover a variety of imperfectly defined morbid processes characterized by abnormal blood destruction and blood formation. Careful study of the ætiology of these conditions is requisite, many of the so-called "pernicious" anæmias being more correctly designated hæmolytic septic anæmia, due to a definite infective process.

In the condition clinically designated primary idiopathic (pernicious) anæmia there is still divergence of opinion as to the exact position of blood transfusion in the treatment. Most observers are agreed that if transfusion is to be employed, it is best applied relatively early in the disease and repeated at short intervals (seven to ten days).

Under these conditions favourable results evidenced by improved red cell count and apparent remission of the disease have frequently been recorded. In the later stages where blood destruction is advancing rapidly with breakdown of the blood-forming mechanism, the disease approximating the type of aplastic anæmia, the addition of healthy blood may tide over a crisis and possibly prolong life, but cannot be relied upon to arrest the disease. It appears that to be of greatest service transfusion is best applied relatively early and repeatedly in hæmolytic anæmia. In leuchæmia, transfusion has been found to be unsatisfactory and beset with danger.

Infective Conditions, Acute or Chronic Septic Absorption, and Similar Conditions in which there is Destruction of Red Cells.

Transfusion has frequently been advocated in conditions of sepsis particularly of chronic type. It is likely that in certain instances where the resistance to infection is lowered, the stimulus of fresh corpuscles and serum may help to turn the balance in the patient's favour. In many reported cases the results have been less satisfactory than might have been expected.

Burns and Poisoning.

In the treatment of severe burns, the suggestion has been advanced that an exsanguination followed by transfusion of new blood would be likely to prove a useful performance. The same treatment has been advocated for carbon monoxide poisoning. Of transfusion in these cases we have had no practical experience.

SELECTION OF BLOOD DONORS.

Donors should be healthy adults free from communicable disease. We have held the view that it is the best practice to carry out a direct test of compatibility between the blood of the patient and that of the donor. This can readily be done where the simplest laboratory facilities are available.

In this connexion it is to be particularly observed that patients suffering from malignant disease have sometimes been found to possess unexpected hæmolytic properties and may therefore be dangerous subjects for transfusion. It has recently been reported, moreover, that ether anæsthesia may temporarily change the agglutinating characteristics of patients. Other observers have recorded that the agglutinating properties of a patient's blood may alter after several transfusions have been given, making a direct test of compatibility desirable in each instance when repeated transfusions are to be employed.

In emergency the use of blood found to be of compatible group by the methods advocated by Moss has been employed. No untoward result has followed. Quite recently Huck and Guthrie have stated that there are further blood groups which were previously unrecognized. If this be so, the formerly accepted teaching in regard to blood groups may require revision.

In the present state of knowledge direct tests with serum of patient and corpuscles of donor and

corpuscles of patient with serum of donor are necessary to eliminate possible incompatibility.

METHODS.

We are strongly of the opinion that the use of whole blood by the indirect method with the employment of the paraffined tube should be the method of election, provided that efficient technique and team work can be assured.

The use of citrated blood is applicable where such facilities are wanting and can readily be performed by one operator with the assistance of a nurse only.

The quantity of blood transfused has varied with the nature of the case. From five hundred to one thousand cubic centimetres have been the usual amounts employed. In exceptional instances larger quantities have been used.

In conclusion we desire to emphasize that the means of transfusion should be part of the routine equipment of every hospital and that no life should be lost from direct loss of corpuscles by hæmorrhage, provided the source of bleeding can be controlled.

We have been constrained to bring this subject forward because we believe that there are patients whose lives may be saved by blood transfusion, and because it is very necessary that there should be practical appreciation of the possibilities and limitations of this most valuable therapeutic measure.

THE TECHNIQUE OF BLOOD TRANSFUSION.

It is important to maintain a rigidly aseptic technique during transfusion of blood.

Donors have been infected with tubes used to collect a second supply of blood immediately after use on a recipient suffering from septicæmia in addition to anæmia following hæmorrhage. A donor may also be infected by instruments which have been previously employed to expose the vein of a recipient suffering from septicæmia.

It is therefore wise to use a separate set of instruments for donor and recipient and if this be impossible to work from the donor to the recipient.

Transfusion of whole or unaltered blood may be carried out by the modified Kimpton-Brown tube coated with paraffin.

Transfusion of citrated blood may be carried out (a) by the Mayo clinic method, or (b) by Keynes's apparatus.

Transfusion of Whole Blood.

The modified Kimpton-Brown tube (see Figure 1.) as used by us is a cylindrical flask, one end of which is drawn out into a tapering cannula about five centimetres long and having a bore of about two millimetres. The other end which is open, is closed during a transfusion with a cork or rubber plug. Three centimetres from this end there is an "air" tube to allow for escape of air during the collection of blood and for the attachment of some sterile apparatus for raising the pressure of air in the tube.

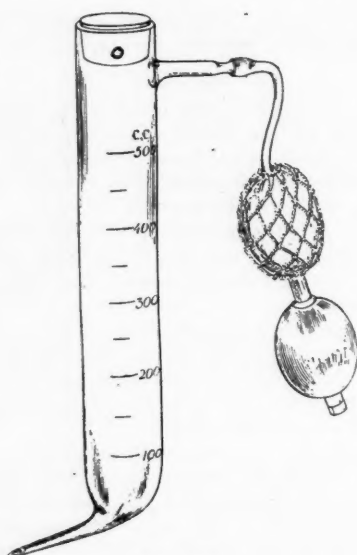


FIGURE 1.

The tube is graduated and has a measured capacity of five hundred cubic centimetres. At the suggestion of Dr. Simpson Newland, we had two glass studs attached to the sides of the tube. A retaining band may be attached to these and passed over the cork to prevent it being displaced when the pressure of the air is being raised. This is only necessary when a small seal of paraffin has been left.

The tube is coated with paraffin having a melting point of about 54° C. Strict asepsis is maintained during this procedure.

It is essential that the tube be clean, sterile and absolutely free from all moisture before the paraffin is applied.

The tube is heated uniformly over a "Primus" stove or in an autoclave to a temperature at which it can just be held in the gloved hand. Melted paraffin is now poured into it and the cork inserted. Some paraffin is allowed to flow through the cannula and the tube is then rotated until it is evenly coated with a thin covering of paraffin. The tube is then inverted and placed in an upright position resting on the cork to allow the excess of paraffin to drain to this end and act as a seal.

During this process the outer surface of the tube may be rubbed with cloths moistened with ether or alcohol to solidify the paraffin before too much flows away. The tube is then wrapped in sterile towels.

A saturated solution of paraffin wax in ether may also be used for coating the tube.

In addition to the instruments employed to expose the veins six fine "mosquito" forceps are very useful to attach as retractors to the edges of the incisions in the veins. The donor and recipient should be placed on adjacent tables, their arms being abducted and resting on small tables or arm

rests. The vein commonly selected is the median basilic or cephalic at the elbow. It is exposed under local anæsthesia and a large incision is not necessary. The donor's vein is ligated at the proximal end of the incision and that of the recipient at the distal end. Other ligatures are passed, but not tied, under the distal portion of the donor's vein and under the proximal portion of the recipient's vein. Gentle traction on these second ligatures will kink the vein and so prevent hæmorrhage from the vessels after it has been opened. Artery forceps should be attached to the ends of all these ligatures. Throughout the operation the wound should be kept free from blood and serum with swabs moistened with citrate or saline solution.

The vein is opened by a V-shaped incision, the direction of the incision being towards the wrist in the donor and towards the shoulder in the recipient.

Should the recipient's vein be a small one and collapsed, it may be dilated with the points of a fine artery forceps smeared with vaseline. Care should be taken that the recipient's vein is ready for the insertion of the cannula before commencing to collect the blood.

A tourniquet is lightly applied to the donor's arm and the cannula of the paraffined tube inserted into the vein. The tension on the check ligature is released and gentle traction on the proximal ligature keeps the wall of the vein applied to the cannula. The donor then opens and closes his hand slowly. The contractions of the muscles of the forearm accelerate the flow of blood into the tube. Care should be taken that the end of the cannula be not pressed against the wall of the vein, as this will obstruct the flow of blood into the tube. It takes as a rule from four to five minutes to collect the blood.

When sufficient blood has been collected the finger is pressed firmly against the end of the "air tube" and the cannula withdrawn. The cannula is then inserted into the recipient's vein and the pressure of the air raised in the tube by means of a sterile and dry Higginson's syringe attached to the "air tube." The blood is allowed to flow into the patient's vein at the rate of about one hundred cubic centimetres per minute.

The patient is watched for any signs of distress, such as sensation of fullness in the chest, nausea, dizziness, pain in the lumbar region and epigastrium. Should any of these signs appear, the transfusion is temporarily stopped and, if they persist, no more blood should be injected.

In some of our earlier urgent transfusions in France when there were no facilities for the grouping of donors, it was advised as a precautionary measure to inject a few cubic centimetres of blood and then to wait for five minutes. If no signs of incompatibility appeared, one proceeded with the transfusion.

To avoid the risk of air embolism the cannula is withdrawn while there are still a few cubic centimetres of blood in the tube. The veins are ligated and divided between the ligatures and the wound

sutured. The arm should be kept at rest in a sling until the wound is healed.

Transfusion of Citrated Blood.

Many kinds of apparatus have been devised for the transfusion of citrated blood. One of the simplest methods is that used at the Mayo Clinic.

Mayo Clinic Method.

The vein of the donor is transfixed transversely by a fine intestinal needle. A needle of wide bore (1) which is attached a small length of rubber tubing, is then inserted into the vein. The blood is received into a beaker containing citrate solution. The blood is then transferred to the vein of the recipient through a needle attached to a glass funnel of two hundred and fifty cubic centimetres capacity. Pemberton has reported a series of 1,036 cases transfused by this method.

Keynes's Apparatus.⁽⁴⁾

The apparatus shown is one used and described by Keynes. It is simple and effective and may be described as a modification of the well-known "Robertson's bottle," modified in the direction of simplicity (see Figures II. and III.).

The following is a résumé of Keynes's description of the manner in which it is used:

The sodium citrate is kept in solid form in small stoppered bottles, each containing one gramme (fifteen grains) of the salt. These are sterilized at 130° C. and can be kept indefinitely until wanted.

If four hundred and fifty cubic centimetres of blood or less are to be drawn the contents of one bottle are shaken into the transfusion flask; fifty cubic centimetres (approximately two ounces) of sterile warm water are added. The needle used for withdrawal of blood has a bore of two millimetres. It should be sterilized and kept in liquid paraffin. A sterile rubber tube is attached to it. The inner surface of the tube is lubricated with liquid paraffin. Two to three minims of 2% "Novocain" solution are injected over the vein and a small cut in the skin is made with the point of a scalpel and the needle is pushed through this into the vein. The end of the tube hangs into the flask containing the citrate solution.

If a properly adjusted tourniquet is kept on the donor's arm while he works his forearm muscles by clapping and unclapping his hand, a flow of blood is obtained which is fast enough to prevent clotting in the needle.

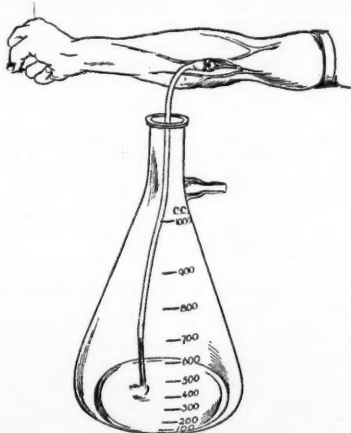


FIGURE II.

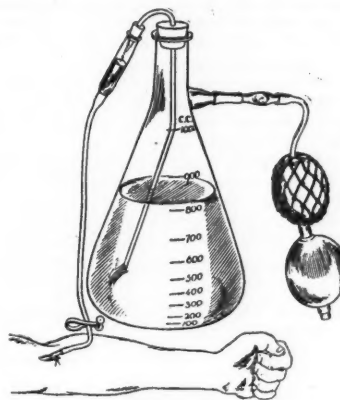


FIGURE III.

Blood up to one thousand cubic centimetres may be collected in ten to twenty minutes. The blood is mixed with the citrate solution by gently swinging the flask.

When the blood is to be given, the delivery tube with the rubber bung is inserted in the flask and the corpuscles which have gravitated to the bottom, are distributed through the fluid by gently shaking it.

In administering the blood it is often advisable to inject it through a cannula which is tied into a vein. The barrel of the air lock together with the rubber tube and cannula is filled with 0.9% saline solution and the tube is clipped near the cannula. The cannula is tied into the vein and the barrel of the air lock with its contained saline solution is then fixed firmly on the rubber bung so that the nozzle of the delivery tube projects into the saline solution. A rubber bellows is attached to the side tube of the flask. A short piece of glass tubing loosely packed with cotton wool should be interposed between the bellows and the flask to prevent any particles of dust being blown over into the flask from the bellows which are not sterilized. The clip near the cannula is released and the flask emptied by creating a positive pressure by means of the bellows.

The whole apparatus is easily sterilized and we prefer to use a sterile bellows or a Higginson's syringe.

Keynes's apparatus may be obtained from Messrs. Allen & Hanbury, who also provide a convenient box for carrying it.

In conclusion we desire to thank the medical men who have furnished us with the notes of cases.

Reference.

- (4) "Blood Transfusion," by Geoffrey Keynes.

The following case records illustrate the effect of transfusion under the various classes.

CLASS I.—TRAUMATIC HÆMORRHAGE.

Case I.—Wound of Common Femoral Artery.

(Under the care of Dr. George Bell, see THE MEDICAL JOURNAL OF AUSTRALIA, March 5, 1921.)

R.W., *etatis* fifteen years, was brought to Sydney Hospital by ambulance at 9.10 a.m. on July 14, 1920. He was suffering from a wound in the left groin caused by a wicker worker's knife thrown at him from a distance of six feet about 8.30 a.m. on the same day.

The ambulance attendants stated that blood was spurting from the wound when they arrived. His clothes in the vicinity of the wound were saturated with blood.

The hospital record of his condition on admission was as follows: "Patient pale, collapsed, pulseless and has vomited; temperature 95° F.; respiration rate 22 per minute."

Immediate treatment consisted of *rechauffement*, elevation of the foot of the bed and administration of fluids. Hypodermic injections of morphine (0.0075 gramme) were given at 9.30 and 10.30 a.m. Briefly his condition during the day was as follows:

11.30 a.m.: Pulse-rate, 108; systolic blood pressure, 98 millimetres of mercury (auscultatory method).

Noon: Red blood cell count (capillaries of ear), 3,690,000 per cubic millimetre; hæmoglobin, 90%; red blood cell count (vein), 3,760,000 per cubic millimetre.

12.30 p.m.: Pulse-rate, 120; restless and complaining of great thirst.

2 p.m.: Pulse-rate, 136; no external hæmorrhage; patient has vomited; extremities warm.

3.30 p.m.: Pulse-rate, 144; restless; still complaining of great thirst; vomiting.

4.30 p.m.: Pulse-rate, 144; systolic blood pressure, 90 millimetres of mercury (auscultatory method); no hæmorrhage from wound.

As the general condition of the patient was becoming progressively worse, despite the application of the usual restorative measures, it was decided to transfuse the patient with blood.

The brother of the patient, aged seventeen years, was selected as donor after it had been ascertained that his blood corpuscles were not agglutinated by the serum of the patient.

About 5.45 p.m. 750 cubic centimetres of blood were transfused by means of a modified Kimpton's tube coated with paraffin. The pulse-rate immediately after transfusion was 120 and the volume of the pulse "much improved." The supply of nitrous oxide being inadequate, ether was administered as a general anæsthetic at 6.30 p.m.

The external iliac artery was exposed by the trans-peritoneal route and temporarily controlled by a Crile's carotid clamp. The inguinal ligament was retracted upwards and the hæmorrhage was seen to come through an irregular wound in the main arterial trunk at the junction of the common femoral and external iliac arteries and from a small wound in the adjacent vein.

The wound in the vein was controlled by a lateral ligature. The artery was ligatured proximally and distally to the wound in it and about 1.9 centimetres of the artery containing the wound excised. The Crile's clamp was then removed, the peritoneal incisions closed and the abdominal incision sutured in layers.

The wound in the thigh was sutured and a small drainage tube inserted into the subcutaneous tissue for forty-eight hours.

At 8.45 p.m. the pulse-rate was 120 and the systolic blood pressure 130 millimetres of mercury.

At 8.30 a.m. on the following day the pulse-rate was 114 and the systolic blood pressure 120 millimetres of mercury. The urine was normal.

Convalescence was uneventful.

CLASS II.—HÆMORRHAGIC EMERGENCIES OF OBSTETRIC PRACTICE.

Case II.—Lateral Placenta Prævia; Occipito-posterior Position with Head Extended.

(Under the care of Dr. A. J. Gibson.)

The patient, M.F., thirty-four years, was admitted to the Women's Hospital on August 31, 1920, suffering from *placenta prævia*, the presentation being occipito-posterior with head extended. At 11 p.m. on September 1 a general anæsthetic was administered, the head was flexed and rotated into an anterior position. Forceps were applied and a living child delivered. There was a severe hæmorrhage during the third stage, so the placenta was removed. The patient was in a state of extreme collapse after the removal of the placenta. She became thirsty, restless and cold and continued in this condition until about 8 a.m. on

September 2, 1920. At 3.30 p.m. on September 2, 1920, the pulse-rate was 140 and the systolic blood pressure 85 millimetres of mercury. A suitable donor was found and 750 cubic centimetres of blood were transfused by Dr. George Bell, the indirect method by means of a paraffined tube being used. Immediately after the transfusion the pulse-rate fell to 120 and the systolic blood pressure rose to 105 millimetres of mercury. On the following day her general condition was much improved and patient was discharged from hospital in good condition on September 26, 1920.

Case III.—Central Placenta Prævia and Eclampsia.

(Under the care of Dr. H. C. E. Donovan.)

N.L., twenty-nine years, was admitted to the Women's Hospital on February 28, 1921. She was drowsy and shortly after admission had a fit. The urine contained one-third albumin and the systolic blood pressure was 190 millimetres of mercury. She was bleeding fairly freely. Vaginal examination disclosed an almost centrally situated *placenta prævia*. Morphine (three centigrammes) was administered. Bi-polar version was performed and a leg brought down into the vagina. A large amount of blood was lost. The hæmorrhage was not controlled by traction on the leg, so the cervix was dilated, the child delivered and the placenta removed.

On March 3 the patient had a severe hæmorrhage and some placenta was expelled. She was in a state of collapse and complained of difficulty in breathing. Four days later the lochia was offensive and on the following day, March 8, the uterus was explored and some placental debris and membrane were removed. An intra-uterine douche was given. There was free hæmorrhage during this operation and the patient became very restless. A blood examination was made and showed 2,000,000 red cells to the cubic millimetre.

At 8 p.m. on March 8, 1921, one litre of blood from a suitable donor was transfused by Drs. Bell and a Court, who used a paraffined tube, the pulse-rate before the transfusion being 128 and after 120 per minute.

On the following day the general condition was improved. She was not restless and her colour was much better. The red cell count showed 3,500,000 per cubic millimetre and the systolic blood pressure was 116 millimetres of mercury. The urine contained half albumin on March 12 and twelve days later there was only a faint cloud of albumin and the systolic pressure 92 millimetres of mercury. A blood count showed 4,000,000 per cubic millimetre. Patient was discharged from hospital on March 28, 1921.

Case IV.—Concealed Accidental Hæmorrhage.

(Under the care of Drs. R. I. Furber, Young and Hunter.)

Mrs. S., thirty-one years, was suffering from accidental hæmorrhage. Pain was first felt at 6 a.m. on April 4, 1923. At 1 p.m. Cæsarean section and hysterectomy were performed. The uterus was extremely distended with blood and very hard. The blood had forced its way through the musculature under the peritoneum all over the uterus, but especially in the lower portion. At 2 p.m. the pulse could just be felt at the wrist. The blood of her husband was examined and proved to be compatible. About 2.45 p.m. the patient was very restless and considered to be dying. Three hundred cubic centimetres of blood were transfused by Dr. George Bell and immediately after this 600 cubic centimetres, the total amount being 900 cubic centimetres. The patient's colour improved and the pulse could be felt at the wrist and she asked for food. Convalescence was uneventful.

Case V.—Toxæmia of Pregnancy Anæmia.

(Under the care of Dr. Constance D'Arcy.)

J.D., aged thirty-nine, was admitted to the Royal Hospital for Women on November 17, 1920. She was pregnant, the duration of her pregnancy being about seven months. For some months before admission she had suffered from diarrhoea and from some bleeding *per rectum* after stool. The hæmorrhage had occurred at irregular

intervals and was due to piles. It had not been excessive but fairly constant. There was also a history of frequent vomiting during pregnancy up to the time of admission. The urine contained a trace of albumin, acetone and a small amount of pus. As a rule the temperature rose to 37.8° C. (100° F.) in the evening. The pulse was soft and its rate varied from 120 to 140.

Blood examinations yielded the following results:

Date.	Red Blood Corpuscles.	Leucocytes.	Hæmoglobin.	Colour Index.
18-11-1920	1,900,000	3,800	50%	1.3
29-11-1920	2,520,000	1,400	50%	1.0
1-12-1920	1,970,000	1,500	55%	1.4
3-12-1920	1,900,000	2,600	50%	1.3
11-12-1920	1,400,000	9,800	55%	1.9
15-1-1921	1,750,000	7,700	45%	1.3
31-1-1921	2,300,000	6,200	65%	1.4

Transfusion was done on November 27, 1920. On November 18, 1920, there was definite anisocytosis; a few polkilocytes were seen. There were no nucleated red blood corpuscles and no polychromatophilia. On January 31, 1921, there were no nucleated red blood corpuscles, but anisocytosis and polkilocytosis were noted.

Induction of labour was indicated, but it was thought that the patient would succumb under the stress of labour and the small loss of blood likely to follow. Before inducing labour it was decided that a blood transfusion was indicated. (The patient was seen in consultation by Drs. Fairfax and D'Arcy.)

A note was made on November 21, 1920: "No vomiting since admission" and on November 22, 1920: "Very tender in right iliac region. Frequent and scalding micturition."

Donors were tested at the Royal Prince Alfred Hospital.

On November 27, 1920, five hundred cubic centimetres of blood were transfused by Drs. George Bell and Holmes à Court with a Kimpton's tube.

On November 27, 1920, after the transfusion no immediate clinical effects were noticed. During the succeeding twenty-four hours, although the blood count showed improvement as previously noted, the general condition of the patient was grave so that the induction of labour was postponed. Labour began spontaneously on December 2 and ended in one hour with the birth of a living child. There was a slight loss of blood. The general condition then showed immediate improvement.

The feeling of all in attendance was that she was enabled to stand the inevitable loss of blood during confinement on account of her improved blood condition following the transfusion.

The diarrhoea continued to be troublesome until January, 1921, but was less frequent when she was discharged from hospital on February 2. Dr. Constance D'Arcy saw the patient during 1922. She was in good health and had been doing very heavy work with little ill-effect.

CLASS III.—HÆMORRHAGE ASSOCIATED WITH PATHOLOGICAL CONDITIONS.

Case VI.—Hæmatemesis and Melæna.

(Under the care of Dr. Holmes à Court at the Coast Hospital.)

J.N., thirty-six years, a female, was admitted on April 16, 1923. The illness began five days previously, when patient went to bed feeling quite well and awakened with a smothering sensation. She arose from her bed and fainted. She suffered from hæmatemesis the following day. Her mother died the day before the onset of this illness. There was no history of digestive disturbance.

On examination the temperature was 37.8° C. (100° F.), the pulse-rate 122 and respiration rate 26. The

patient was pale and the stools contained much altered blood. Examination of the heart showed that the apex beat was in the fourth space and 8.75 centimetres (three and a half inches) from the middle line. The heart dulness was within normal limits. There was a systolic bruit heard at the root of the neck and all over the præcordium, apparently a hæmic murmur. The blood pressure was 124 millimetres of mercury (systolic) and 68 millimetres (diastolic).

The results of blood examination are recorded below:

April 17:

Red blood corpuscles	2,400,000
Hæmoglobin value	40%
Colour index	0.9
Leucocytes	19,000
Polymorpho-nuclear cells	80%
Lymphocytes	16%
Large mono-nuclear cells	4%

April 19:

Red blood corpuscles	2,000,000
Hæmoglobin value	30% to 40%

April 21:

Red blood corpuscles	1,250,000
Hæmoglobin value	30%
Colour index	1.2

April 23:

Red blood corpuscles	1,900,000
Hæmoglobin value	40%
Colour index	1

No nucleated red cells were seen.

A suitable donor was obtained and a blood transfusion was performed at 4.5 p.m. by Dr. Holmes à Court, 900 cubic centimetres of citrated blood being given. At 4.40 p.m. patient became suddenly short of breath and had a rigor, but soon recovered.

April 25:

Red blood corpuscles	3,000,000
Hæmoglobin value	50%
Colour index	0.8

April 27:

Red blood corpuscles	3,800,000
Hæmoglobin value	78%

The general condition has been excellent and temperature normal.

Patient made an excellent recovery.

CLASS IV.—DISEASE OF THE BLOOD.

Case VII.—Hæmophilia; Successful Operation for Appendicitis.

(Under the care of Dr. P. L. Hipsley, see THE MEDICAL JOURNAL OF AUSTRALIA, May 26, 1923.)

"J.F., aged twelve years, was sent to me on February 14, 1923, with a history of having had severe abdominal pain for two days. Examination revealed a distended abdomen with rigidity over the whole of the right half. The pulse-rate was 140 and the temperature 38.9° C. (102° F.). The tongue was thickly coated. The child presented all the symptoms of a ruptured appendix with fairly extensive peritonitis.

Past History.

"The child was a typical hæmophile. I had attended him on numerous occasions since early childhood for hæmorrhage from various situations, such as bleeding from the *frænum lingue* and from minor abrasions, numerous subcutaneous ecchymoses from trivial injuries and on one occasion for hæmorrhage into the knee joint and on another for hæmorrhage into one of the smaller joints of the hand.

Family History.

"One cousin on the mother's side died after the extraction of a tooth. The maternal grandfather was a typical hæmophile, but lived to reach the age of eighty years and then, curiously enough, he died from hæmorrhage after an operation on his turbinates.

Treatment.

"Knowing the family and personal history, I decided before operating to secure several suitable donors. Both parents proved after testing by Dr. Tebbutt to be unsuitable, but two satisfactory donors were readily secured.

"The operation revealed a ruptured gangrenous appendix, with free pus in the right kidney pouch and in the pelvis. The appendix was removed and the wound drained in the usual way.

"For the first six days following the operation the condition of the child was very grave. The amount of hæmorrhage met with at the operation was rather less than usual. On the sixth day blood began to appear in the stools and on the following day the wound commenced to bleed. The hæmorrhage gradually increased and the child became quite pallid, showing all the signs of severe hæmorrhage. I thereupon decided that transfusion was indicated.

"Dr. George Bell and Dr. Holmes & Court transfused half a litre of blood from one of the donors by means of a Kimpton's tube. The condition of the child improved on the table and the bleeding ceased for seven days.

"Eight days after the transfusion hæmorrhage from the wound began again and the child rapidly became anæmic once more. I gave the child two hundred cubic centimetre of blood from the same donor as on the first occasion, but the bleeding still continued. Twenty-four hours later I transfused four hundred and fifty cubic centimetres from another donor and the bleeding promptly ceased.

"For the next four days a large quantity of old blood clot which had been lying free in the peritoneal cavity, came away, but there was no fresh bleeding. There had been no hæmorrhage from the arm incisions up to this time, but two weeks later one of the incisions, which had failed to heal by first intention, commenced to bleed. This was readily controlled by applying "Coagulose" on a small plug of cotton wool and binding it firmly on to the bleeding point.

"The child left the hospital quite well at the end of the sixth week.

Commentary.

"There was no excessive hæmorrhage at the time of operation and for a week afterwards.

"The duration of the control of hæmorrhage seemed to depend on the quantity of blood transfused.

"There seems to be no reason why operations should be particularly dangerous on hæmophiles, provided the surgeon is in a position to do a transfusion promptly if necessary."

Case VIII.—Pernicious Anæmia.

(Under the care of Dr. H. Hamilton Marshall.)

D.W., twenty-seven years, on admission to Sydney Hospital on May 25, 1921, complained of weakness, loss of appetite and loss of weight. Her relatives and four children were healthy. Five years previously she suffered from a similar illness and was ill for about three months, five weeks of which were spent in a country hospital.

Seven weeks before her admission to Sydney Hospital and two weeks before the birth of her last child, patient suffered from severe diarrhœa and vomiting and her legs became swollen. She lost a considerable quantity of blood during her confinement and did not have a doctor in attendance.

On examination she was very anæmic and the skin was a lemon yellow colour.

Dr. Cedric Bowker reported on May 28: "Uterus retroverted, mobility good, fornices clear, i.e., no evidence of phlebitis or any local pelvic inflammatory condition." The history of symptoms prior to confinement would appear to exclude a general puerperal septic condition.

Blood examinations were carried out.

May 26, 1921:	
Red blood corpuscles	710,000
Hæmoglobin value	30%
Colour index	2
Leucocytes	2,000

Well marked anisocytosis and poikilocytosis was present; eight megaloblasts were seen.

June 1, 1921:	
Red blood corpuscles	980,000
Hæmoglobin value	45%
Colour index	2
Leucocytes	1,550

No nucleated red blood corpuscles were seen.

June 7, 1921:	
Red blood corpuscles	940,000
Hæmoglobin value	45%
June 19, 1921:	
Red blood corpuscles	1,920,000
Hæmoglobin value	45%

July 5, 1921:	
Red blood corpuscles	630,000
Hæmoglobin value	20%

Both the patient and her husband belonged to the same blood group and on May 31, 1921, 480 cubic centimetres of blood were transfused by Dr. George Bell, the indirect method by means of a paraffined tube being used. Patient apparently improved gradually until June 23, 1921, on which day she walked a short distance. From this date she gradually weakened and died on July 6, 1921.

During her stay in Sydney Hospital there was pyrexia at times. In addition iron and arsenic were administered. One injection of anti-streptococcal serum was given and a streptococcus vaccine used. A second blood transfusion was suggested, but the patient was unwilling to have her husband used as a donor again.

Dr. H. Hamilton Marshall comments on the case:

"At the time of transfusion death seemed imminent and afterwards she appeared to be making rapid progress until shortly before her death, when she went down precipitately."

Case IX.—Pernicious Anæmia.

(Under the care of Dr. Mervyn Thomas.)

Male, aged sixty-two, on October 20, 1922, complained of the following symptoms: (a) Increasing shortness of breath and weakness which had been noticed for about eight months; (b) "sore" throat over the same period (c) loss of appetite.

A month previously the patient had taken a holiday on the Blue Mountains, but his symptoms became worse and he could scarcely walk at all. There was anorexia and eating caused vomiting and irregular attacks of diarrhœa.

On examination the patient presented a wasted appearance. The skin and conjunctiva had a distinctly lemon tint. His mental condition was excellent. The spleen was not enlarged. Several of the remaining eight teeth showed evidence of pyorrhœa. The urine contained neither albumin nor sugar.

A blood count on October 20, 1922, showed 1,250,000 red cells, 4,000 leucocytes with a colour index of 1.2. No nucleated red cells were seen, but a few myelocytes, anisocytes and poikilocytes were noted.

The patient was given a mixture of iron and arsenic, the dose of *liquor arsenicalis* was increased by 0.06 mil (one minim) daily.

Two weeks later a blood count revealed 3,000,000 red cells and 4,000 leucocytes with a colour index of 1.2. Nucleated red cells were numerous; there were a few myelocytes; anisocytes and poikilocytes were noted.

The patient was much improved. The appetite was better and he walked a little. About this time the patient caught cold and never seemed to regain his strength again. His appetite became poor and he suffered occasionally from vomiting and diarrhœa.

About two weeks after the last blood count, another blood count was taken. The red blood corpuscles numbered 2,250,000 per cubic millimetre, the leucocytes 3,000; the colour index was 1.1. There were a few nucleated red cells, a few myelocytes as well as anisocytes and poikilocytes.

ILLUSTRATIONS TO DR. T. W. LIPSCOMB'S ARTICLE.

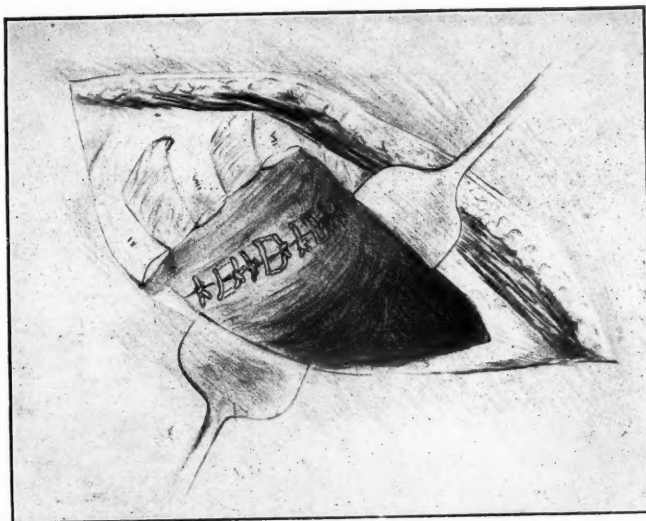


FIGURE I.
Diagram of Suture of Opening in the Diaphragm.



FIGURE II.
Skiagram of Congenital Diaphragmatic Hernia (by Dr. H. R. Sear).

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About this time patient had eight teeth extracted and a vaccine of hæmolytic and non-hæmolytic streptococci was prepared by Dr. Marjorie Little. The patient showed no signs of improvement and became intolerant of arsenic and dilute hydrochloric acid.

On February 1, 1923, he was transfused with 550 cubic centimetres of whole blood.

His condition improved wonderfully for four days only. He gradually became worse and died on March 23, 1923.

Case X.—Pernicious Anæmia.

(Under the care of Dr. Harold Ritchie.)

D.C., aged forty-nine, a clerk, was admitted to the Sydney Hospital on March 3, 1920. He had complained of weakness for three years.

On March 10, 1920, transfusion of four hundred cubic centimetres of blood was carried out at 6 p.m. by Dr. George Bell, the blood of donor and recipient being found to belong to Group II. (Moss). The donor was aged thirty-six years.

The progress notes subsequent to transfusion were as follows.

On March 11, 1920, he was very delirious and had delusions. On March 14, his mental state was still disturbed and he refused to take food, but was more rational. On March 15 he was much more rational and was taking his food readily. On March 17, 1920, he was comatose. He died during the day.

The results of the blood transfusion are given below.

March 5, 1920:

Red blood corpuscles	3,000,000
Hæmoglobin value	50%
Colour index	1.2
Leucocytes	6,000

One megalocyte was seen in a count of two hundred leucocytes. Poikilocytes and anisocytes were present.

March 10, 1920:

Red blood corpuscles	1,020,000
Hæmoglobin value	30%
Colour index	1.4
Leucocytes	6,600

There was poikilocytosis and anisocytosis. Punctate basophilia was noted. Two megalocytes were seen among two hundred leucocytes counted. Transfusion was performed at 6 p.m.

March 13, 1920:

Red blood corpuscles	1,220,000
Hæmoglobin value	30%
Colour index	1.2
Leucocytes	6,100

Poikilocytosis and anisocytosis were still present, as was polychromasia. Three normoblasts and four megaloblasts were seen among two hundred leucocytes counted.

March 15, 1920:

Red blood corpuscles	1,060,000
Hæmoglobin value	30%
Colour index	1.4

Three normoblasts and four megaloblasts were seen among two hundred leucocytes.

Case XI.—Aplastic Anæmia.

(Under the case of Dr. Holmes à Court.)

L.C., a female, aged twenty-eight years, admitted to Sydney Hospital on December 10, 1919, complained of weakness which had been noticed for two months. During her last pregnancy she had suffered from "morning sickness" from the third month to full term.

She was admitted to South Sydney Women's Hospital before the onset of labour.

There had been much less vomiting since the birth of her child.

She also gave an indefinite history of bleeding from the bowel some months previous to admission.

The patient was very emaciated; her skin was a lemon yellow colour. The mucous membrane of the lips was very pale and that of the lower lip showed several small ulcers. She was edentulous. The spleen was not palpable.

Between December 10 and 13 the temperature varied between 37.8° (100° F.) and 36.1° C. (97° F.) and the pulse-rate from 108 to 126.

The urine was acid and contained neither albumin nor sugar.

Blood examination yielded the following results.

Red blood corpuscles (per cubic millimetres)	950,000
Hæmoglobin value	20%
Colour index	0.9
Leucocytes (per cubic millimetre)	3,400
Polymorpho-nuclear cells	70%
Small lymphocytes	30%

There was slight poikilocytosis and some polychromasia. No nucleated red blood corpuscles were seen.

A donor was found and his blood group ascertained. The grouping of patient and donor appeared compatible.

On December 15, 1919, five hundred and sixty-eight cubic centimetres of citrated blood were transfused by Drs. Holmes à Court and George Bell with a "Robertson's bottle." The patient died about three hours after this.

Dr. Holmes à Court made a *post mortem* examination. There were small blood clots in many of the vessels (thrombosis). The valves of the heart were healthy. It was probable that the agglutinating properties of the test sera used had deteriorated, these sera having been brought from England a considerable time beforehand. It was, therefore, likely that the blood transfused was actually incompatible and that rapid hæmolytic occurred. This case served to emphasize the necessity of a cross matching of corpuscles and sera rather than group testing in such a condition.

NOTE ON THE PRACTICAL TESTING OF DONORS.

It is important that as soon as a transfusion is decided upon or it may be in anticipation of this procedure several donors, at least three, should be secured voluntarily from amongst the patient's relatives and friends. They should be free from infective disease and more particularly from malaria and syphilis. If it is not a matter of urgency a Wassermann test should be carried out. The fingers of patient and donors are pricked, about five drops of blood are taken into a test tube containing about five cubic centimetres of citrated salt solution (0.5% sodium citrate in 0.85% sodium chloride solution) and then about half a Wright's capsule is collected as for the Widal test. The test tube is shaken and constitutes the corpuscles, whilst the capsule will provide the serum. Several glass slides are cleaned and one drop of the patient's serum is added to one drop of each donor's corpuscles on separate slides and reciprocally one drop of each donor's serum is added to one drop of the patient's corpuscles. The drops are mixed with a small glass rod or a match stick and the glass slides gently rocked between the fingers so as to hasten the clumping. Within five minutes agglutination is generally readable with the naked eye, but the final reading should be taken after ten minutes with the aid of a low power microscope or a hand lens. Absence of agglutination by each method between the blood of patient and donor constitutes complete compatibility. Agglutination of patient's corpuscles by a donor's serum but no agglutination of this donor's corpuscles by the patient's serum constitutes partial compatibility for the purpose of transfusion.

Agglutination of a donor's corpuscles by the patient's serum constitutes incompatibility, whether the serum of the donor agglutinates the patient's corpuscles or not.

It is desirable to select completely compatible donors, but as we shall see this is in a small proportion of cases almost impossible, whilst in the majority of cases it is possible if several donors can be examined.

TABLE OF COMPATIBILITIES (JANSKY'S CLASSIFICATION).

Group of Patient's Blood.	Group of Donor's Blood.			
	I. (52%)	II. (38%)	III. (7%)	IV. (3%)
I. . . .	C	X	X	X
II. . . .	P	C	X	X
III. . . .	P	X	C	X
IV. . . .	P	P	P	C

C = Completely compatible; P = Partially compatible; X = Incompatible.

It will be seen from the accompanying table that, for example, if the patient belongs to Group I. (so-called universal donor), a donor from the same group is alone compatible and approximately 52% of donors belong to this group. Again, if the patient belongs to Group II., a donor from the same group is completely compatible, a donor from Group I. is partially compatible, whereas donors from Groups III. and IV. are incompatible. It will also be seen that only members of the same group are completely compatible and that for Groups III. and IV. patients only 7% and 3% respectively of donors will be completely compatible and as this would necessitate on the average an examination of fourteen and thirty-three donors respectively, it follows that a partially compatible Group I. donor will nearly always be used for Group III. and a donor from Groups I. or II. for a Group IV. patient (so-called universal recipient).

Although I still check blood groups by Moss's method in addition to the "direct method" which has been described above, we are advocating the use of the latter method, because it is possible thereby for general practitioners to find a compatible donor and so carry out a transfusion in emergencies of civil practice.

MENTAL DEFICIENCY AMONG THE CRIMINAL INSANE.

By S. J. MINOGUE, M.B., Ch.M. (Sydney),
Junior Medical Officer, Mental
Hospital, Parramatta.

RECENTLY the subject of mental deficiency has been very prominent and extensive writings on the subject have appeared both in medical periodicals and in the lay press. At such a time the following observations on ten criminals at the Mental Hospital, Parramatta, may prove of interest. Binet-Simon's methods of the estimation of the mental age and "native intelligence" together with a number of

tests taken from Franz's handbook have been followed in all cases, for it is only by following a set method that a uniform standard can be fixed upon. Briefly Binet-Simon's method consists of asking set questions for each age. Thus simple questions are set for the age of three, simple questions that an average child of three should be able to answer and so on the questions becoming more difficult to the age of sixteen. In this way by noting the patient's answers we can estimate his mental age and "native intelligence." "Native intelligence" is the innate intelligence of a person and ceases at the age of sixteen. It is thus in contra-distinction to "acquired intelligence" bestowed on a person by education, environment *et cetera*.

In addition to the Binet-Simon's test a number of tests were given to show what mental faculties and what "acquired intelligence" these patients possessed.

1. Ebbinghaus's test (apprehension and perception) was passed by only two patients, Nos. 2 and 7; the others failed completely.

2. Number of repetitions for memorizing (memory capacity) was completed by only two patients, No. 3 on the fourteenth attempt, No. 7 on the eleventh attempt. A normal person should do this in eight attempts.

3. Repetition of stories (connected train of thought) only patients No. 2 and 7 could repeat even the essential points of the stories read to them.

4. Memory for school subjects. With the exception of patient No. 7 this knowledge of school subjects was of the most meagre character. School and its memories had been forgotten. The subjects learned there had been forgotten, except in so far as these subjects affected their environment. For example, all knew the days of the week, but none knew even the essential facts of the civics and history of Australia. The conclusion drawn was that these patients lived in an environment, learned certain facts from that environment, facts which would be of benefit to them in competition with their fellows. Outside that environment the patient knows and is content to know little.

5. Calculation tests and mental arithmetic (test thinking, judgement and association). These tests were done with the greatest facility by patients Nos. 6 and 7 and slowly by patient No. 1. All the rest failed. This fact is interesting, showing as it does a strange paradox. The men are criminals, living on their wits almost and yet they are unable to do simple mental arithmetic, work that everyone requires to know when in daily contact and competition with their fellow men.

6. Knowledge of common objects (acquired intelligence). Patient No. 7 possessed a considerable range of knowledge. The knowledge possessed by the remainder was of an "environmental" nature and emphasized once again the findings in the memory for school subjects.

7. The Ziehen test (ability of discrimination, comprehension, description). In not one case was normal ability displayed. Most tried to base their an-

swers "in terms of use." Patients Nos. 1 and 7 displayed some intelligence in their answers, but their answers were distinctly below a normal standard.

8. Masselon test (comprehension) was passed by patients Nos. 1, 2 and 7 only.

9. Completion tests, reading upside down and backwards (general intelligence) was passed only by patients Nos. 1, 2, 3 and 7.

10. Vocabulary tests (general intelligence). Only two patients could attempt this test. Patient No. 2 could give four words in three minutes; No. 7 could give twelve words. A normal person should give twenty to thirty words in the given time.

11. Finch test (general intelligence). All failed completely in this test. This is a test requiring ingenuity and powers of thought and it will be noted whilst two or three patients can attempt other tests of intelligence in which they can assist their minds by means of their special senses, a test like the Finch requiring the unaided thought is beyond their mental powers.

12. Tests of logic. No patient could make the slightest attempt to answer this test. Logic is an attribute of the higher intellectual powers and this

test conclusively shows the lack of higher intelligence, so well proven by the tests above.

Conclusions.

1. All ten persons show an extremely low degree of intelligence, the highest being of a mental age of only ten years and eight months or an intelligent quotient of 67—the lowest of a mental age of only six years and four months or an intelligent quotient of 39.

2. The finding by Binet-Simon's methods are amply borne out by the further tests taken from Franz's handbook.

3. That in all cases the crimes have been against property and person. In no fewer than five were they sexual in character. It would appear that mental development has not advanced sufficiently far to make them realize their duty to the State, a duty so ably pointed out by Mercier in his "Crime and Insanity." Again this lack of normal mental development is shown by the frequency of sexuality. The growth of the brain is retarded, sexual development has been normal and sufficient self control has been lacking to lead this normal sexual development to higher things—to the "sublimation of the libido."

TABLE I.

Patient.	Age at First Conviction.	Number of Convictions and their Nature.	Age at Last Conviction.	Nature of Last Crime.	Form of Mental Disorder.	Mental Age.	Intelligence Quotient. ²
1	25	Six; Vagrancy, drunkenness	29	Stealing £6 from a dwelling; awaiting trial	Dementia, praecox (hebephrenic type)	9 years, 6 months	59
2	16	Eight; Stealing, vagrancy, larceny	23	Stealing whilst under bond; two years' hard labour	Moral imbecility	9 years, 7 months	59.8
3	20	Numerous; Stealing, robbery, vagrancy	42	Sodomy (by force); two years' hard labour and declared habitual	Mania; delusional	7 years, 11 months	49
4	21	Eight; Stealing, vagrancy	46	Larceny; two years' hard labour and declared habitual	Melancholia; delusional	7 years, 1 month	44
5	17	Nine; Stealing, robbery with violence	34	Murder; term of his natural life	Congenital mental deficiency	9 years, 5 months	59
6	17	Five; Robbery	23	Rape; awaiting trial	Congenital mental deficiency	8 years, 8 months	54
7	40	One	40	Indecent assault on a child; awaiting trial	Congenital mental deficiency	10 years, 8 months	67
8	19	One	19	Indecent assault on a child; awaiting trial	Congenital mental deficiency	6 years, 4 months	39
9	16	One	16	Indecent assault on a child; awaiting trial	Congenital mental deficiency	6 years, 6 months	40
10	20	Five; Stealing	30	(1) Horse stealing; (2) larceny; three years' hard labour	Congenital mental deficiency	8 years, 5 months	52

¹ This patient is frankly homo-sexual and declares openly his abhorrence of hetero-sexuality.

² Intelligence quotient is the mental age divided by sixteen and multiplied by one hundred. In normal people it varies between ninety and one hundred and ten.

4. It will be noted that in nine persons the path of crime was entered upon at an early age, in eight before the age of twenty-one. Once entered upon the path was continued and conviction after conviction followed in seven of them. Punishment was of no avail and perhaps could be of no avail. Their's is a war against society, they live in the "narcissistic period" of American authors and the gregarious instinct characteristic of *Homo sapiens* is not capable of development.

5. In eight of the persons this mental deficiency must from the personal history obtainable have been noticed at school. Eight only reached the fourth class at the age of fourteen. Patients No. 2 and No. 7 reached the highest class and their mental deficiency is only obvious when they are subjected to Binet-Simon's tests.

6. A lack of judgement is apparent in all. Only patients Nos. 2, 5 and 7 passed question 44, the test designed by Binet to show the normal judgement in a child of ten. This want of judgement is only too apparent from the indignant denials that the majority give of their last crime, denials which are given in the face of strong evidence. When we consider that there was no need for any patient to commit the crime he did, for example patient No. 7, the most intelligent of all, is a married man, above all by the fact that the crime once committed, no patient made any attempt to cover up his tracks. It is interesting to note that there is thus a lack of insight into their true position, a lack of insight plainly shown by the answer given by five patients to the question: "What is justice?" "Justice is what I did not receive."

7. Coupled with the lack of judgement there is a great deficiency in all patients of logical powers. Lacking judgement, deficient in logic these patients cannot subject themselves to live in harmony with their neighbours for the public good.

8. Yet in spite of their mental deficiency a certain amount of shrewdness is present in all patients except No. 8 and No. 9. With these two exceptions all knew the value of money, all could give change with the greatest facility and in money matters they could not be puzzled. Three escaped from custody. Patient No. 2 made a daring escape in broad daylight, whilst being transferred from one prison to another. Patient No. 6 made his escape from a prison van in broad daylight in a busy city street. Patient No. 10 made his escape from a mental hospital. It would appear that although handicapped by a lack of mental development, they have learned sufficient of the way of the world to take part in the struggle for existence.

9. From the tests of general knowledge it was concluded that (with the exception of patient No. 7) of the outside world these patients knew nothing. They have lived in the past in a certain sphere, have learned certain facts from that sphere, facts learned by continual repetition, perhaps facts which could be of use to them in their struggle for existence, but beyond those facts they know little and are content to know little.

10. Binet-Simon's methods, whilst admittedly not perfect, yet afford us a very valuable means of prov-

ing mental deficiency in persons and enable us to demonstrate various degrees of mental deficiency.

11. In view of the criminality so common in the State and in view of the great interest taken in mental deficiency at the present time it would be interesting and at the same time instructive to submit all criminals to tests similar to Binet-Simon, so that we might discover all who are mentally deficient and then submit them to proper care and control. In this way their energies could be at least directed into channels useful to themselves and to society at large.

Reports of Cases.

DIAPHRAGMATIC HERNIA.¹

By T. W. LIPSCOMB, M.B., Ch.M. (Sydney),
Honorary Surgeon, Lewisham Hospital, Sydney.

BEFORE the war diaphragmatic hernia was practically always discovered during the course of an abdominal operation, but the number of traumatic cases as the result of war injuries has taught us much more about the condition. Taking into account the more frequent use of X-rays in all gastro-intestinal conditions, there is greater likelihood that such cases will be diagnosed before operation.

I have to report a case of congenital diaphragmatic hernia discovered during the course of an abdominal operation.

A.C.H., aged thirty-six years, a poultry farmer, was first seen by me in a private hospital in September, 1921. I was asked to take charge of him by another practitioner. He was a tall, spare built, long waisted man somewhere about fifty kilograms (eight stone) in weight. His history is that, previously in good health, he met with a motor-car accident some ten years ago; he was considerably knocked about, but had no broken bones and no evidence of injury to any viscera. He was able to leave the suburban cottage hospital after a few weeks and for some months was in his usual health. Then he developed indigestion and attacks of colicky abdominal pain without any definite cause. Later his symptoms of gastric fullness and discomfort became more evident and the condition was diagnosed as delay at the pylorus.

Five years ago he was operated on through a mid-line upper abdominal incision. The surgeon informed me that the duodenum and pyloric regions could not be identified and he thought they must have been tangled up in a mass due to an intra-abdominal hæmorrhage from the accident five years previously. The only part of the stomach available was the anterior surface and a long loop anterior gastro-jejunostomy was done.

After this operation he had complete relief for twelve months and then gradually his old symptoms recurred, with attacks suggestive of small bowel obstruction. Clinically his condition was thought to some delay at the stoma. An opaque meal was given and the X-ray findings should have put us on the right track, but we interpreted the findings in a different way. The radiographer's report states that: "The stomach bulges extremely high up into the thorax on the left side, displacing the heart towards the right, this distension being apparently due to an enormous amount of gas on top of the stomach contents. The stomach itself is extremely high up apparently being bound by adhesions. There is very marked delay in evacuation, the stomach at the end of seven and a quarter hours still containing most of the meal, the stoma apparently acting very poorly."

¹ Read at a meeting of the New South Wales Branch of the British Medical Association on August 31, 1923.

"None of the meal could be seen going by the normal duodenal route. The duodenum and pyloric end of the stomach could not be visualized and the intestines also appear to be involved in adhesions.

"The conclusion come to is that the gastro-enterostomy stoma is functioning very poorly and the stomach appears to be bound up very high on the left hand side and to contain much air pushing the heart to the right."

An operation was performed on September 8, 1921. The anæsthetic chosen was ether administered by the open method. The upper segment of the abdomen was re-opened. The liver came down lower than usual and there were only a few thin peritoneal adhesions.

After investigation it was found there was a smooth edged oval opening in the left side of the diaphragm, the oval being transverse. The edge of the opening was quite smooth and for this reason I looked upon the gap as congenital in origin. Through this opening and within the thorax was the stomach, transverse colon and great omentum and a large amount of small intestine. I passed my whole hand into the thorax and the contents were gradually drawn down into the abdomen. The stomach was distended with gas and the end of the greater curvature seemed stuck at one spot to the pleural side of the shelf. There was no contraction of the gastro-jejuno-stoma, but the two limbs of the small intestine, to and from the stoma, were dilated and as big as my own wrist.

To aid manipulation an opening was made into one limb and gas expelled from the stomach and jejunum.

With the withdrawal of all these viscera from the thorax, the patient gave considerable apprehension to the anæsthetist and some anxious few minutes were spent; consequently no attempt was made to gain access to the diaphragm from above by resecting a rib.

With difficulty six silk stitches were inserted to close the opening, but there was still a gap remaining on the inner side which admitted two fingers.

In suturing the parietes the anterior wall of the stomach was caught to the parietal peritoneum with a silk stitch, hoping thereby to make it difficult for the stomach to return through the gap.

The patient had an uneventful convalescence, but three weeks after the operation, just before he was to leave hospital, he got an attack of nausea and vomited up a large amount of green fluid. Evidently the silk sutures had cut through, the viscera had slipped back and a loop of small intestine kinked over the edge and causing partial obstruction.

This is what must have been happening in the past and accounted for the great enlargement of the two limbs going to the stoma. It must have been the opaque meal in the limbs proximal to the kink that gave the impression in the skiagram that the meal had not left the stomach.

The patient was told the exact condition of affairs and advised that if attacks of partial blocking recurred, an attempt should be made to suture the diaphragm from above.

His general condition improved considerably and his heart was not pushed so far over to the right. Six months after the operation he was sixty-five kilograms (nine stone, two pounds), but by the end of 1922 he had come down to nearly fifty kilograms (eight stone), was always tired and had a considerable amount of gastric discomfort.

On January 16, 1923, a further operation was performed. He was given intra-tracheal anæsthesia. Good exposure and access were obtained by removing some ten centimetres (four inches) of the eighth rib and dividing the costal cartilages of the seventh and ninth. The lung was contracted into the upper part of the thorax and the stomach, transverse colon, omentum and a considerable length of small intestine were in the thorax. The viscera were gradually returned, the only difficulty being that the stomach had partially twisted on itself and there were adhesions between the greater curvature to the pericardium.

It seemed uncanny separating these adhesions from the pulsating pericardium. This was practically all done

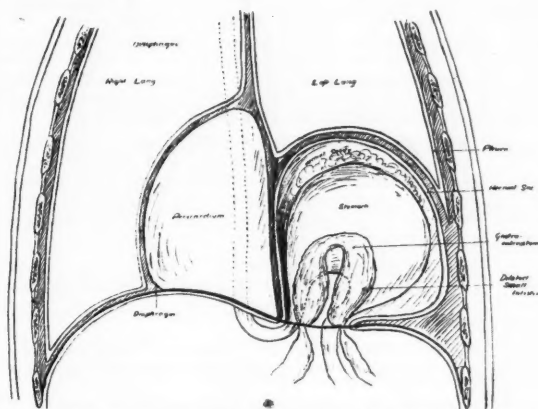


DIAGRAM ILLUSTRATING THE POSITION AND EXTENT OF THE DIAPHRAGMATIC HERNIA (after R. P. Rowlands).

by brushing with swabs as I did not know where the phrenic nerve was. The stomach was finally freed and returned into the abdomen and kept in place by a large sponge, while sutures were being introduced.

The opening in the diaphragm was closed with alternate single sutures of kangaroo tendon and mattress sutures of No. 9 catgut, a good bite of the tissues being taken on either side.

The incision in the thoracic wall was closed without drainage.

He took the anæsthetic very well and the quiet respiration resulting from the intra-tracheal administration was of great value during the operation. He left the table with a pulse of eighty and never gave any anxiety during his convalescence.

At the end of two weeks he started "blowing bottles" to expand his lung and left hospital at end of four weeks. At that time his heart had come back practically to its normal position, his lung had expanded well and to clinical examination his abdominal viscera seemed to be in the abdomen. This was confirmed by the skiagram, the radiologist reporting that the left side of the diaphragm was not moving.

His condition is now one of steady improvement. His weight is sixty-four kilograms (nine stone), his heart is in good position, his lung is well expanded and there is no digestive discomfort.

X-ray examination on August 29, 1923, confirms the clinical findings that all the abdominal viscera are below the diaphragm. The left half of the diaphragm is at a much higher level, moves but very little and apparently there are adhesions between the dome and the lateral costal pleura. The lung is fully expanded in the space available and there is now present a certain amount of scoliosis.

The outstanding case in my memory, when performing my first operation in September, 1921, was that so ably reported by Darvall Barton.⁽¹⁾ His was traumatic in origin and was diagnosed before operation, the condition being attacked by the thoracic route with a very satisfactory result. In searching through the literature, before my second operation in January of this year, I found that Mathews⁽²⁾ experienced the difficulty I encountered in using the abdominal route; he was unable to close the opening completely and anchored the stomach firmly to the anterior abdominal wall to prevent it re-entering the thorax.

Easily the best description of the condition is that by R. P. Rowlands.⁽³⁾ He uses a long incision in the eighth interspace and uses Tuffier's retractors, thus getting an excellent exposure.

Sir William Macewen, whose presence will be welcomed at the forthcoming Congress in Melbourne, was the first to show us that the thorax could be opened without collapse of the lungs and that elaborate pressure chambers

were unnecessary for the performance of thoractomy. This has been confirmed by Professor Gaskill and Dr. T. P. Dunhill, of St. Bartholomew's Surgical Unit, and Dunhill⁽⁴⁾ reports the successful removal of three intra-thoracic tumours by splitting the upper half of the sternum, the first under intra-tracheal anaesthesia, second under open ether, the third with local anaesthesia.

As showing the rarity of the condition it is interesting to note that in *Surgery, Gynecology and Obstetrics*, of August, 1909, Beckman reported three cases only among the patients who had come prior to that date to the Mayo Clinic. Since then I have come across no case reported from that clinic.

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(2) F. S. Matthews and H. M. Imboden: "Diaphragmatic Hernia," *Annals of Surgery*, 1920, Volume LXXII, page 668.

(3) R. P. Rowlands: "Diaphragmatic Hernia," *Guy's Hospital Reports*, 1921, Volume LXXI, page 91.

(4) T. P. Dunhill: "Removal of Intra-Thoracic Tumours by the Transsternal Route," *British Journal of Surgery*, 1922-1923, Volume X, page 4.

Reviews.

ORAL SURGERY.

IN DR. WILLIAM WILSON'S "Handbook of Aural Surgery for Students and Practitioners" we have a little volume in which, though practically of pocket size, the author deals comprehensively with the ear and its affections.

From a consideration of the general matter presented and from its arrangement the volume might well be regarded as a published set of lectures on the subject, so orderly, concise and definite is the teaching. With a few exceptions the author claims that he has confirmed every statement made in the book¹ during an extensive hospital experience. He lays stress on the fact that as 90% of aural diseases are preventible or curable within the first few days of their onset, early diagnosis is indispensable for an early and complete restoration of function. Hence the need for every general practitioner to acquaint himself with the earlier signs and symptoms of aural affections and the methods of their adequate treatment. Information of this kind is to be found lucidly set out in this volume. Short graphic paragraphs with summaries of findings and indications for dealing with them are spaced out in numbered array and marginal notes and précis in heavier type call attention to the more important points in the text. Reference is thus facilitated. The first fifty pages or more are devoted to the surgical anatomy and physiology of the ear, the technique necessary for its examination and the tests of its function. In the remainder of the book the author deals with the diseases of the ear.

The descriptions are illustrated by simple line drawings by the author and are clear and explicit. Of the one hundred figures in the text all but eighteen in which instruments are depicted, are simple diagrams understandable at a glance. The subject of aural suppuration is excellently treated, the march of events at every stage is set down and the appropriate procedure outlined. The reader is not confronted with a multiplicity of alternative measures in treatment, the author's plan being to advise the method he himself has found most efficacious. He decries the use of powders in suppurating otitis media as tending to clog up the ears and, after a fair trial, considers ionization to be much inferior to cleansing and medicating the middle ear with antiseptic

lotions and drops. Complications of middle ear disease are thoroughly dealt with including those in the mastoid process, lateral sinus, meninges, brain and labyrinth. At the back of the book are recorded seventeen most instructive case-epitomes illustrating unusual complications of aural suppuration. Practically all the operative measures employed in diseases of the ear are described shortly, though remarkably completely for so small a book. Vascular affections of the labyrinth, tumour of and injuries to the ear, facial paralysis and the effects of systemic disease and toxic drugs on the ear are all considered. The value of the book is enhanced by sections on malingering, deaf mutism and artificial aids to hearing. There is a good index. This book can be recommended with every confidence as a thorough summary of the most up-to-date English teaching in aural surgery.

HISTORY OF BRAIN SURGERY.

THE growth of the art of surgery cannot better be appreciated than in "A Glimpse into the History of Surgery of the Brain" so delightfully presented by Sir Charles Ballance.¹ In the Thomas Vicary lecture (1921) now made available in book form we have a lucid, well-illustrated and fascinating study of man, Nature's insurgent son, in his age-long struggle against pain and disease. We are taken back through untold centuries to neolithic man who as in savage tribes today trepanned for severe headaches or for fits in order "to let out the demon."

Though the figures for the operation mortality of the stone age have not come down to us, the mute evidence of certain skulls show some survivals. Perhaps primitive man with his first knives and stone hammers may have bettered the terrible mortality of brain operations in the pre-Listerian days of last century.

Truly trephining may justly be considered the alpha and omega of surgery.

Recorded history begins with Hippocrates, father of surgery as of medicine, who understood and wrote on the value of decompressive craniectomies.

The influence of various epochs in medicine and surgery it outlined briefly but clearly. The rise of anatomy with Vesalius, of pathology with Morgagni, the development of the experimental method by John Hunter, the surgical experience gained by Pott and Petit and in the early nineteenth century the contribution by war surgery under Larrey and Guthrie, all these familiar periods are re-introduced to us from a fresh angle with brief and sound commentary.

Many authors, however, have dealt with ancient medical and modern surgical history, but most valuable and interesting of all is the history of our own times written from personal first hand knowledge. This special study is a prominent feature which gives this essay a real and permanent value.

Ballance goes back to pre-Listerian days with their mortality for trephining of 80% and traces the rise of the practice of antiseptics and asepsis on the one hand and of the study of neurology on the other. First came Hughlings Jackson, the "Socrates of neurology," and the improvement of diagnosis by ophthalmology. Then the recreation of experimental neurology under Ferrier established cerebral localization. These advances pointed the way to the great craftsmen Macewen and Horsley, Lane and Cushing, all since 1880. Ballance proclaims Lister the higher light of surgery and Hunter the discoverer of this new world. But while he gives such ample credit to those who lighted the torch, the author himself by his writings and life work well deserves a worthy place among those who pressed on in the race and passed the torch on not only undiminished but burning with a brighter flame.

¹ "A Handbook of Aural Surgery for Students and Practitioners," by William Wilson, M.D., B.Sc.; 1922. Manchester: Sherratt & Hughes; Crown 8vo., pp. x + 336. Price: 15s. net.

² "The Thomas Vicary Lecture: A Glimpse into the History of the Surgery of the Brain: Delivered before the Royal College of Surgeons of England on December 8, 1921, by Sir Charles A. Ballance, K.C.M.G., C.B., M.V.O., M.S. (Lond.); 1922. London: Macmillan & Company, Limited; Demy 8vo., pp. 110, with 30 illustrations. Price: 10s. 6d. net.

The Medical Journal of Australia

SATURDAY, OCTOBER 27, 1923.

The Prophylaxis of Venereal Disease.

IN the fourth annual report of the Ministry of Health of Great Britain Sir George Newman, the Chief Medical Officer, summarizes the work carried out in the year 1922 in England in regard to the endeavour to eradicate venereal disease. This chapter in preventive medicine is worthy of a close study, more particularly because the policy of relying on the voluntary submission to treatment at recognized treatment centres as a means of reducing the amount of infection in the community has recently been confirmed by a medical committee under the chairmanship of Lord Trevethin constituted with the approval of the Minister of Health. In Australia the several legislative bodies have concurred in the adoption of more direct and seemingly more energetic measures. In England there were one hundred and eighty-two treatment centres supported by the local authorities with State aid in the year 1922. Each local authority has been required to inaugurate schemes for dealing with venereal diseases. The Boards of Guardians have in many instances lent their aid as local authorities. The National Council for Combating Venereal Diseases has been subsidized for the purpose of maintaining a vigorous policy of propaganda work on which the Department of Health The total sum provided by Parliament for these relies to a large extent for public enlightenment. purposes amounted to over £424,000. The number of persons treated for the first time at the centres in 1922 was 68,600, so that on this basis the Government was prepared to expend approximately six pounds sterling per person who had or thought that he had been infected with one or other of these horrible diseases. It is not suggested that the British Government paid this money in order to assist patients who had been wanton or careless in exposing themselves to infection. Far from

it. But the Government did realize that, even in times of financial stringency, it was a sound economic expedient to spend nearly a half of a million pounds sterling to reduce the amount of infection. Sir George Newman attaches importance to the figures collected at the treatment centres. He holds that these figures afford further support to the view that the incidence of venereal diseases is declining. In 1920 99,000 persons applied for treatment to these centres for the first time. In the following year the number was 79,000, while in 1922, as stated above, it was 68,000. Of these persons 80,000 in 1920, 60,000 in 1921 and 52,100 in 1922 were found to be suffering from a venereal infection. There was a reduction of 13% in the number of infected persons applying for treatment from 1921 to 1922 and a reduction of practically 35% from 1920 to 1922. The evidence, however, does not appear to be very good. There is no guarantee that the proportion of infected persons who are inclined to seek treatment at the recognized centres, remains substantially at the same level. There is no information to indicate the total number of infected persons, for the policy in Great Britain does not embrace any system of notification. In spite of the widespread and eloquent educational work carried out, it is certain that many persons will adopt any device to conceal the fact of their infection and will accept the risk attaching to treatment by charlatans, pharmacists and other unqualified persons in their anxiety to evade exposure. Again there are many who are so careless of their welfare that despite the most urgent warnings they do not seek any treatment at all, unless the very virulence of their infection compels them to capitulate. These individuals comprise the most dangerous element in the community, for their carelessness and disregard for their own welfare is associated with a carelessness and disregard for the welfare of others. Sir George Newman's figures even suggest that implicit trust cannot be placed on the word of infected persons. Of the fifty thousand persons who ceased to attend at the centres during the year 1922, only 14,400 had undergone the full course of treatment prescribed by those in charge. A further 15,400 ceased to attend after the completion

of one or more courses, but before the final tests of so-called cure had been applied. The remaining 20,200 persons broke away before a single course had been completed. It is hoped that many of these persons had been rendered non-infective before they absented themselves from further treatment. It may be admitted that this partial treatment has a very considerable prophylactic value. But the figures certainly suggest that the persons involved are too capricious to justify the hygienist in measuring his success from the numbers attending year in, year out. Support is gained for this view in the information vouchsafed in regard to the age of the sufferers. It appears that no less than two hundred and eighteen males and four hundred and forty-nine females found to be infected with venereal disease were under the age of seventeen years. Of the 3,178 females suffering from venereal disease no less than 18% were under the age of nineteen years. It will be admitted that children and adolescents are more indifferent to their social responsibility than adults and less amenable to the deterrent influences of public warnings. Again the majority of women who become infected with these diseases, resist the appeal of the hygienist and educationalist more than do males. The substantial numbers of these young infected persons suggest that the sources of infection are yet well controlled. That there has been some reduction in the number of venereal infections in England during the past two years may be and probably is true. It is also quite probable that the enlightenment propaganda and the ample provision of treatment centres have contributed to such a result. There is one impressive fact demanding attention in this report. It is that after two and a half years the two abluion centres provided by the Manchester Town Council have been closed. During the period of their existence no less than 18,027 persons were "dealt with" at a cost of £1,362. This would indicate that a fair trial has been given to these prophylactic centres in a civil community and that it has been found that they are not efficient means of preventing infection on a large scale. It has been demonstrated that under military discipline abluion centres served an invaluable purpose. It has further been shown that

individual medical practitioners attain excellent results by the adoption of reliable methods. But they have failed at all events in Manchester.

In Australia the endeavour to control venereal infection is based on compulsory notification and compulsory treatment by qualified medical practitioners. In Western Australia and perhaps in Tasmania these measures have been adequately and strictly applied with encouraging results. In the larger States there appear to be greater difficulties in administration. We are, however, not yet convinced that the Australian acts have failed. It is probable that if greater energy and more determination were manifested in carrying out all the provisions of these measures, including the persistent prosecution of all persons failing to comply with them, they might yet prove immeasurably more effective in reducing the amount of infection than the more conservative measures adopted in Great Britain.

Current Comment.

HETEROTOPIC TUMOURS.

IN a recent issue of this journal reference was made to a communication by Dr. G. W. Nicholson on the subject of the heteromorphoses. In one of his studies on tumour formation Dr. Nicholson discusses what is the natural corollary of the heteromorphoses, namely the heterotopic tumours.¹ It must be evident at once that tumours may be divided into two groups, tumours whose cells possess the same structure as those of the tissues in which they are found and tumours the structure of whose cells differs radically from that of their parent tissue. The latter group is divided by Dr. Nicholson into three divisions. The first comprises the teratomata, the second comprises the mixed tumours consisting partly of mesenchyme and partly of epithelium and the third division includes tumours which are heterotopic in a strict sense. The parenchyma of these tumours differs in its histological structure in part at least from that of the organs in which they are found. Dr. Nicholson limits his remarks to the epithelial heterotopic tumours. The best known examples are found in the squamous celled carcinomata of mucous membrane lined by glandular epithelium. It is necessary in considering these tumours to exclude instances of formal accommodation and of prosoplasia. Formal accommodation or pseudo-meta-

¹ *Guy's Hospital Reports*, July, 1923.

plasia is a term used to describe those alterations undergone by an epithelium which merely concern its external form, the functional structure characteristic of the tissue remaining unchanged. As an example of those Dr. Nicholson refers to the cubical shape assumed by the alveolar epithelium when the lung is thrown out of action. Prosoplasia is a term used to describe a state in which cells have exceeded their normal degree of differentiation. The development of cells is normally kept in check by their environment and by the function they are called upon to perform. When the environment is altered, development proceeds on physiological lines. Since these are preceded by differentiation only they must be separated from those which are truly heterotopic.

Dr. Nicholson states that there are very few parts of the body in which an innocent or malignant heterotopic tumour consisting wholly or in part of squamous epithelium has not been found. He adopts the name of adeno-carcinoid given by Herxheimer to malignant heterotopic tumours containing areas of glandular carcinoma in addition to squamous epithelium and the name carcinoid for pure squamous celled carcinomata. He gives an extensive résumé of all the more important instances of heterotopic tumours which he has been able to collect from the literature, and then describes in some detail those which have come under his own notice.

The series of tumours observed by Dr. Nicholson numbered forty-four. Twenty-eight of these were pure carcinoids and sixteen were adeno-carcinoids. With the exception of two all were malignant. These two were a cystic adenoma of the thyroid gland and a papillary adenoma of an accessory thyroid. The malignant tumours included tumours of the breast, naso-pharynx and air sinuses, mastoid antrum, epididymis, ovaries, uterus, kidney, thyroid gland, pancreas, gall bladder and lung. It is not necessary to enter into detailed description of these, but there are several important points in connexion with some of them to which Dr. Nicholson refers. In connexion with tumours of the breast he raises the question as to whether carcinomata originate in the epithelium of the ducts or in that of the secreting acini. He refers to the work of Sir George Lenthal Cheatle published in 1920, which indicated that the less highly differentiated epithelium of the ducts gave rise to tumour formation more readily than that of the secreting acini. He points out that Cheatle demonstrated that all stages of tumour formation from simple hyperplasia to malignant infiltration were often present in the same specimen. He holds that Cheatle has reduced to an absurdity the hypothesis of the intervention of cell rests. In view of Cheatle's work it would be necessary to grant that all the epithelial cells lining extensive segments or even whole ducts were of the nature of congenital malformations or cell rests. It may be pointed out that the cell rest theory is that advanced by Cohnheim and is an adaptation of the preformation theory of development.

Dr. Nicholson refers at some length to a type of carcinoma which he has frequently seen in the

breast. Clinically and on macroscopical examination this tumour is seen to be composed of cells which are squamous in type. The structure of the tumour is that of a duct carcinoma, but the cells are squamous. He refers to another type of mammary carcinoma in which a more or less columnar epithelium and a squamous portion are present. The squamous cells are more noticeable in the superficial areas. In the alveoli are many cells with the structural characters of squamous epithelium even to the extent of having undergone some keratinization. Dr. Nicholson will not entertain the suggestion that the superficial squamous areas have originated in the skin. Such a suggestion presupposes either the accidental presence of a cutaneous epithelioma immediately superficial to the mammary tumour in every instance or that one of these has infected the epithelium of the other organ. He thinks that a better explanation is given by Cheatle's observations that extensive surfaces of the ducts are often involved in primary tumour formation. He concludes that the carcinoids and adeno-carcinoids of the breast originate in the epithelium of the ducts. Since ontogenetically the breast is part of the skin he regards it as surprising at first sight that it should give rise to carcinoid formation as rarely as it does. His first law of oncology would be that the epithelial neoplasms of a tissue or organ do not depend on its ontogeny but on its histology. In regard to the manner in which it is possible for the mammary epithelium to give rise to a tumour consisting of squamous epithelium Dr. Nicholson puts forward two possibilities if the "cell rest" theory is discarded and he holds that his evidence is sufficient to warrant its abandonment. Either the structural characters that were lost, have been re-acquired by certain cells, a process of metaplasia or else structural characters that were latent, have become apparent, a process of prosoplasia. While it would appear that Dr. Nicholson accepts the first of these possibilities, he states that he does not know which explanation is true. If the latter be true, then carcinoids of the breast would cease to be true heterotopic tumours and they would have to be classified among those resulting from prosoplasia.

In regard to the tumours of the nose Dr. Nicholson mentions one point of interest. More or less extensive areas of squamous epithelium are to be found lining the inflamed and atrophic mucous membranes of many diseased noses and also of many healthful noses. Schönmann found this in many adult noses but was not able to do so in the noses of infants. For this reason he dismissed the possibility of the anomaly being congenital and concluded that the presence of squamous epithelium could only be accounted for by metaplasia upon the basis of the proliferation resulting from chronic irritation and inflammation.

Dr. Nicholson concludes that metaplasia from the very nature of its causation readily explains the heterotopic nature of tumours. It is an atypical or heterotopic regeneration, a redifferentiation.

Abstracts from Current Medical Literature.

MORBID ANATOMY.

The Genesis of the Mammalian Blood Platelet.

S. P. BEDSON (*The Journal of Pathology and Bacteriology*, April, 1923) declares that, in spite of much experimental work, of the many theories offered as to the origin and development of the mammalian blood platelet not one has been sufficiently convincing to meet with general acceptance. A summary of the various theories that have been offered, is given and the investigators responsible for these theories mentioned. The author then gives a critical survey of the theories of platelet origin and an account of recent experiments performed with the object of throwing light on the problem. It seems quite certain, he says, that investigators must look elsewhere than to the elements of the blood for the origin of the mammalian platelet. It can no longer be maintained that the platelet is nothing more or less than a precipitate coming from one of the plasma proteins. The red cells and leucocyte theories of origin are equally untenable and it is necessary to fall back on the megakaryocyte theory of Wright, or the possibility of an entirely separate genetic line the elements of which have so far escaped attention. The work of Ledingham and Woodcock with bird thrombocytes points to this latter view being the correct one, but it must be admitted that the evidence produced in support of a similar hypothesis in mammals is as yet merely suggestive. The evidence forthcoming from pyridine experiments appears also to be in favour of the theory of platelet formation, but in view of Perroncito's more recent work on this subject it is necessary to be somewhat cautious in arriving at a correct estimate of this evidence. Perroncito has published certain observations from which it would appear that the increase in the number of platelets brought about in the animal by the injection of pyridine, can take place equally well *in vitro*. Perroncito is inclined to interpret his findings as indicating that the platelet is a living cell capable of multiplying by division.

Periarteritis Nodosa.

E. R. CARLING AND J. A. HICKS (*The Lancet*, May 19, 1923) report an instance of *periarteritis nodosa* accidentally recognized during life. The patient was a male, thirty years of age, who walked with a pronounced limp due to restricted dorsiflexion of the right foot. The right calf which measured 1.75 centimetres more than the left in circumference, was tense and tender. In the substance of the sural muscles was a "lumpiness" which sometimes felt like one mass and

sometimes like several adjacent nodules without discrete edges. A provisional diagnosis of gummatous infiltration or just possibly a sarcoma was hazarded. The patient had irregular fever of from 37.2° to 38.4° C. (99° to 101° F.). The serum failed to react to the Wassermann test. The calf was explored and the lumpiness proved to be not a "tumour" but small scattered nodules of fibrous nature about the smaller arteries. Around these the muscle fibres underwent spasmodic contraction. Histological examination of one of the nodules revealed that the whole of the *tunica adventitia* of an artery of medium size was intensely infiltrated with small round cells. This infiltration was also seen in the fat and muscular tissue in the immediate vicinity and also in the *tunica media* and *tunica intima* of the vessel. Professor Shattock identified the condition as *periarteritis nodosa*. The infiltrating cells were all small round cells and elongated fibro-blasts; no polymorpho-nuclear leucocytes were observed. It seemed that the infiltrating cells must have arisen from the *tunica adventitia* and spread inwards. The leucocytes varied from fourteen thousand to thirty thousand per cubic millimetre of blood. Cultures made from the blood during life were sterile; the faeces gave no evidence of worm infection and attempts to transmit the disease to guinea pigs by intraperitoneal injections of citrated whole blood were unsuccessful.

Chloroma.

H. T. ASHBY AND A. SELLERS (*The Lancet*, June 23, 1923) report an instance of chloroma with unusual features in a boy aged seven years. The patient presented definite prominence in both eyes and a swelling over each temporal foramen. The skin was bronzed. The blood contained 2,992,000 red cells and 5,100 leucocytes per cubic millimetre. Of these 67% were lymphocytes. The temperature was 40.6° C. (105° F.) the day prior to death which occurred after an illness of six weeks. Autopsy revealed tuberculosis of the lungs, liver and left adrenal gland. The growths in the orbits surrounded and compressed the eyeballs without invading them and had the microscopical structure of a round cell sarcoma, the cells being closely packed and intercellular matrix being scanty. The tumour was firm in consistence, had a peculiar greenish-yellow colour and exuded much greenish serum on section. The changes in the spleen consisted of an increase in the amount of pulp tissue and evidence of active hæmolysis.

Folliculoid Cancer of the Ovary.

M. R. ROBINSON (*The American Journal of Obstetrics and Gynecology*, June, 1923) states that folliculoid cancer of the ovary is one of the rarest entities in gynaecological pathology. He records an instance of this type of neoplasm and as a result of his studies concludes that histogenetically,

cylindroid and folliculoid cancer and the type including both forms are all derived from the primordial granulosa nests. The cells of the cancer manifest uniformity and an approach to maturity. The cylindroid type is most likely the forerunner as evidenced by the absence of degenerative changes. The fact that the epithelial cells composing these tumours bear a very close resemblance to the granulosa cells and their tendency to group themselves in some instances into follicle-like bodies are not sufficient evidence to warrant the assumption that they are derivatives of Graafian follicles. The proper terminology for this form of ovarian cancer is "cylindroid and folliculoid" which describes a structural similarity to Graafian follicles without implying a derivation from them. In the second part of his paper the author deals with histogenetic and morphological correlations of ovarian neoplasms and a new classification for these new growths is submitted.

Herpetic Encephalitis.

C. DA FANO (*The Journal of Pathology and Bacteriology*, January, 1923) has recently studied herpetic meningo-encephalitis in rabbits and their bearing on similar conditions in man. He states that the vesicular fluid of all forms of herpes, with the exception perhaps of *herpes zoster*, contains a virus by means of which a fatal disease may be caused in receptive animals. The disease is transmissible in series from animal to animal, independently of the route chosen for its transmission. One of the principal localizations of the disease is found in the central nervous system where an inflammatory condition has been observed, characterized by wide-spread small-cell infiltrations, intense nerve cell degeneration and diffuse proliferative phenomena on the part of some of the fixed elements of the tissue affected. This condition of herpetic meningo-encephalitis has much in common with the malady known as lethargic or epidemic encephalitis and with the form caused experimentally in animals with the virus of the latter. In the nervous tissue of animals suffering from the herpetic meningo-encephalitis, granular structures occur morphologically similar to the encephalitic neuro-corpuscles of Levaditi, Harvier and Nicolau and morphologically and tinctorially identical with the "minute bodies" found within and without the central nervous system of patients suffering from lethargic encephalitis.

Tissue Malformations.

G. W. NICHOLSON (*Guy's Hospital Reports*, April, 1922), in a paper dealing with tumour formation, records the results of his observations on tissue malformations. He records that tissues found in abnormal positions are the result of an error of development have not necessarily been displaced, but may have arisen *in situ* as anomalies of bulk and differentiation. The cells of tissue malformations undergo their differentiation at the same time

as the normal tissue. At most they lag behind to a slight extent. In exceptional circumstances their physiological development is retarded. They show no signs of persistence in an embryonic state or of active proliferation beyond that seen in normal organs as a result of stimulation by inflammation, the needs of the body and other physiological causes. In the rare instances in which an accessory glandular organ presents an embryonic appearance, the assumption is probably correct that it has only recently begun to be differentiated in a regular, physiological manner from the simpler cells of the original malformation.

MORPHOLOGY.

Cranio-Vertebral Variations.

BRUNO OETTERING (*The Anatomical Record*, July 20, 1923) discusses the morphological significance of certain cranio-vertebral variations. Variations in the cranio-vertebral section involve two regional factors, the occipital bone around the *foramen magnum* and the proximal portion of the cervical part of the vertebral column. The former on account of its complex character is the carrier of these variations. The author refers to the vertebral theory of the origin of the cranium, that the cranium consisted of a number of vertebrae which in the course of evolution had been transformed into the definitely shaped bones of the human cranium. This theory was proposed by Goethe and Oken. Thomas Huxley as a result of wide comparative study showed that the cranial bones originated and became differentiated in an unsegmented skull. This view was accepted by the majority of scientists until Gegenbaur brought forth a new theory. While agreeing with Huxley on the autonomous *Anlage* of the bones of the brain case and the unsegmented state of the ethmoid and partly of the orbital region, he conceived the greater posterior or vertebral portion of the skull as derived from the coalescence of vertebrae or vertebral *Anlagen*. This theory of Gegenbaur was based on his study of the cartilaginous skull or chondro-cranium of the selachians. Froriep pointed out that Gegenbaur had thus arrived at the postulate of a phylogenetic primordial segmentation in default of an ontogenetic one. Further studies revealed that in the early ontogenetic stages the *Anlage* of three or four occipital vertebrae was evident. Their development remained rudimentary with the exception of the most caudal one which attained more advanced stages before its definite merging with the other rudiments into the cranial axis. It was named by Froriep the occipital vertebra. The author states that there is a group of variations in the cranio-vertebral region directly related to these genetic conditions. He refers to Kollmann's observations in connexion with Froriep's occipital vertebra. One anomaly discussed is that of the *labia foraminis*

magni anteriora. These take the form of precondylar tubercles which according to Kollmann's interpretation are identical with the unassimilated and at the same time abnormally developed extremities of the anterior arch of the occipital vertebra. Bolk offered another explanation. He saw in the causation an irregular process of differentiation. He pointed out that at their first appearance the occipital condyles occupied a strongly ventral position and he asserted that during the ontogenetic development of the region of the *foramen magnum* they migrated in a lateral direction. Bolk held that the definite topographic conditions were not the result of the broadening of the intercondylar space, but of the actual wandering of the condyles. When this process does not come to an end, there is a persistence of the condylar parts in more or less distinct non-articular ridges in mesial elongations. These medial elongations are possessed of a potentiality to develop and they enlarge. The author points out that if this be correct, the theory of ontogenetic residua, at least in these instances, is frustrated. He also refers to the *condylus tertius* and the application by Bolk of his theory to this anomaly. He gives a full description of such an accessory condyle found by himself in a skull. He refers to the fact that in ontogenetic stages the *chorda dorsalis* after leaving the odontoid process forms a swelling. The sheath surrounding this not infrequently is the site of calcareous deposit and if the swelling is preserved, it may crown the odontoid process as a tiny bud. This might completely ossify and then be joined to anterior border of the *foramen magnum* in the shape of an osseous point or tubercle. The author points out that Bolk made this same suggestion. This would imply analogous processes of differentiation for both the occipital and the first cervical vertebrae. In his conclusion the author states that the causation and derivation of certain variations in the cranio-vertebral region may be genetic or non-genetic, the variations may be reversive or newly acquired.

Abnormalities in Anatomy of the Biliary Tract.

E. R. FLINT (*The British Journal of Surgery*, April, 1923) discusses his findings in two hundred *post mortem* dissections of the vessels and ducts of the liver. In one hundred and fifty-eight instances the right hepatic artery was found to arise from the main hepatic trunk. Thence it was seen to pass behind the common hepatic duct in one hundred and thirty-six and in front in twenty-five. In forty-two instances it arose from the superior mesenteric artery and in these it always passed behind the bile ducts. In seven instances there were two right hepatic arteries, one from each of the above origins. In two instances it arose from the common hepatic trunk, in one of these it passed in front and in

the other behind the common hepatic duct. There were two other variations of surgical importance. In eight dissections in elderly people the artery was found to be tortuous and to project forwards to the right of the common hepatic duct something like the hump on a caterpillar's back and from this the cystic artery took origin. In some cadavers the right hepatic artery was seen to run parallel and very close to the cystic duct and neck of the gall bladder, almost suggesting the presence of a double cystic duct. In one hundred and ninety-six instances the cystic artery arose from the right hepatic, in three from the left hepatic and in one from the gastro-duodenal artery. In thirty-two it passed in front of the common hepatic duct and in one hundred and sixty-eight it arose just to the right of this duct or behind it. There were thirty-one instances of accessory cystic artery, in sixteen arising from the right hepatic, in three from the left hepatic, in eleven from the gastro-duodenal and once from the superior pancreaticoduodenal artery. This accessory cystic artery invariably crosses in front of the bile ducts. A small artery of surgical interest often arises from the hepatic artery low down, the superior pancreaticoduodenal or gastro-duodenal. It runs a rather tortuous course along the surface of the common bile duct; in a small percentage the gastro-duodenal artery forms a curve in front of the lower supra-duodenal part of the duct. At this site it is often crossed by the superior pancreaticoduodenal artery. According to authors of text-books of anatomy the right and left hepatic ducts unite in the portal fissure to form the common hepatic duct which is about twenty-five to thirty millimetres long. This unites with the cystic duct at this point to form the common bile duct. The author found that although the cystic duct and common hepatic duct come together at the point stated, they do not unite here, but are almost always bound together for a distance varying from two millimetres to five centimetres. The most common situation for union is within two centimetres of the upper border of the duodenum. In twenty-eight instances there was no supra-duodenal common duct at all and in three the only representative of the common duct was that part which lies in the wall of the duodenum. In most instances the cystic duct joins the right side of the common duct, but it may rarely join it in front or behind. There were twenty-nine examples of accessory bile ducts, all of which were accessory right hepatic ducts. The duct leaves the liver at the extreme right of the portal fissure and may enter the right or common hepatic ducts either high or low or at the junction of the common hepatic with the cystic duct, less commonly it may enter the cystic duct. In calibre this accessory duct varies in size from that of a good sized bristle to the size of the right hepatic duct. Usually it is about half the size of this duct.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, 30 to 34, Elizabeth Street, Sydney, on August 31, 1923, Dr. C. H. E. LAWES, the PRESIDENT, in the chair.

The Action of Pituitary Gland.

Dr. C. H. BURTON BRADLEY gave a demonstration of the effect of extracts of pituitary gland on plain muscle. He pointed out that the apparatus displayed was a modification of Dale and Burn's apparatus for testing the strength of extracts of the substance of the posterior part of the pituitary gland. After having briefly summarized the known pharmacological effects of the extract, he referred especially to the fact that in some of its effects there was found after one dose a definite refractory phase during which the expected effect was not repeated. He correlated this with the clinically observed results that the injection of pituitary extract did not always bring about the effect expected. He suggested that this might be related to the varying activity of the patient's own pituitary gland.

Methods of standardization of such a potent substance were very important and many had been tried. Blood pressure readings in anesthetized animals were subject to variation produced by the anæsthetic agent and the physiological condition of the animal's own pituitary gland. He had found that widely different effects were frequently produced in dogs by the same extract. The method of Dale and Burn involved the use of a virgin uterus of a guinea pig of between two hundred and three hundred grammes weight. As the effect of one dose could be almost completely washed out by the system of changing the Ringer's solution in which the isolated muscle was suspended, no refractory period would confuse the issue. The difficulties of the method, which Dr. Bradley did not think had been made sufficiently clear in the special report of the Medical Research Council, were due to the variability of individual uteri, even when undoubtedly virgin, the delicate nature of the adjustments in regard to weight, temperature and the like and the very tedious nature of the work. He had, however, after some six months of practical work obtained reasonable expertness and was convinced that it was the most reliable method available, provided that the test was carried out by a medical practitioner experienced in this kind of work. In his modification of Dale and Burn's apparatus an outer glass chamber surrounded the inner calibrated vessel and, being in connexion with a water bath, maintained a uniform temperature. In the inner vessel was suspended the horn of a virgin guinea pig's uterus. Ringer's solution was run from a large reservoir through a warming apparatus and could be delivered rapidly into the inner vessel surrounding the muscle. It could also be run off as rapidly. Oxygen was bubbled through the fluid in the inner vessel. Tests were made by pipette delivery of small, diluted doses of extract into the upper layer of the fluid in the inner vessel. Maximal and submaximal doses of a standard pituitary solution were worked out and compared with the solution to be tested. The muscle first went through a phase of increasing excitability to pituitary extract; then there occurred a plateau stage during which the results were equal for equal doses and later, as a rule, the muscle became hyperexcitable and unsuitable for comparison. The length of the plateau stage was variable. Pregnant uteri usually gave "all or nothing" responses. Similarly menstruous and post-parturient uteri were hyperexcitable.

A demonstration followed of the apparatus with a locally prepared extract. Records made with the moving surface and with the stationary drum with a special frontal balanced writing point were exhibited.

Dr. C. H. E. LAWES thanked Dr. Burton Bradley for his interesting and instructive demonstration. He was satisfied that few if any members had made such elaborate preparations and taken so much trouble for a demonstration.

Congenital Diaphragmatic Hernia.

Dr. T. W. LIPSCOMB read notes on a case of congenital diaphragmatic hernia and presented the patient (see page 440).

Dr. HOLMES A COURT said that he had been present and wished to express his appreciation of the manner in which Dr. Lipscomb had performed the operation. He was to be congratulated on the excellent result. The man had been very ill indeed and was then in relatively good health. The technical difficulties of the operation had been very great, more especially on account of the pericardial adhesions. He could confirm what Dr. Lipscomb had said concerning the uncanny sensation experienced when these adhesions were being separated. Intra-tracheal anaesthesia had appeared to have been of great advantage.

Dr. NIGEL SMITH had been present at Weymouth when Barton had operated on his patient to whom reference had been made by Dr. Lipscomb. No special difficulties had been encountered during the operation, at all events as far as adhesions were concerned. The sole disturbing element had been the rapid up and down movement of the diaphragm. This had rendered the suturing of the wound in the diaphragm a matter of patience and persistence. It might have been easier had intra-tracheal anaesthesia been used. He joined in congratulating Dr. Lipscomb on the success he had gained.

Dr. R. GORDON CRAIG also added his congratulations to Dr. Lipscomb. It had been particularly advantageous to have had an opportunity of reviewing the result of the previous work at the second operation. He asked Dr. Lipscomb whether there had been a definite indication for the performance of the gastro-enterostomy. Had an ulcer of the stomach or duodenum been present? In the next place, he asked whether Dr. Lipscomb had disconnected the gastro-enterostomy. He referred to the statement that the thorax could be opened without special precautions. Mr. Dunhill had slit up the sternum and had approached the mediastinum to deal with an endothelium or a fibroma, he forgot which, but had not opened the pleural cavity. It was not the experience of all surgeons that the pleural cavity could be opened without incurring the danger of collapse of the lung. In the olden days they had had terrible experiences when operating for hydatid cysts of the lungs. If the patient had been deeply enough under the anæsthetic, the insertion of the exploration needle, so commonly used in those days, had usually been followed by bursting of the cyst and the patient had occasionally been drowned in his own hydatid fluid. At other times the operation had given the surgeon much cause for anxiety. If the anaesthesia were light, there had usually been coughing, spluttering and hæmorrhage. The surgeon had been compelled to "get out" as quickly as he could. Under intra-tracheal anaesthesia the operation could be performed with scientific precision and there was no cause for anxiety. The lung was kept in contact with the parietal layer of the pleura. He therefore wished to utter a word of warning. It was not such a facile thing to open the thorax without getting collapse of the lung. If the intra-tracheal method were employed, it could not occur.

Dr. R. B. P. MONSON stated that the majority of diaphragmatic herniæ were not real herniæ, in the ordinary sense of the term. The traumatic forms had no hernial sacs, although the congenital form had a well defined sac. He asked Dr. Lipscomb whether he had been able to find a hernial sac at the operation. He congratulated him on his excellent result.

Dr. P. FIASCHI, O.B.E., said that the frequency of collapse of the lung had led him to turn his attention to intra-tracheal anaesthesia and to operation with the aid of the pneumatic chamber. His father had been operating at the Lister Private Hospital some years previously when the condition described by Dr. Gordon Craig had

happened. When intra-tracheal anæsthesia was employed, the lung was kept against the thoracic wall. His audience would probably remember the experiments he had carried out on dogs with insufflation and with diminished pressure chambers. These experiments had taught him that by intra-tracheal insufflation it was easy to keep the lung expanded even after wide exposure of the thoracic organs. Referring to the technique of Dr. Lipscomb's operation, he advocated the incision described by Thorburn in 1912 through the seventh intercostal space at the rear, dividing the seventh, sixth and fifth ribs at their tubercles. This yielded the best exposure obtainable.

In his reply Dr. LIPSCOMB thanked Dr. Nigel Smith for his remarks which had been of particular interest to him. To Dr. Gordon Craig he replied that the gastro-enterostomy had been performed by another surgeon on the diagnosis of dilatation of the pylorus. He had not disturbed the stoma at the second operation, because he had thought it best to leave things as they were for the time being, until the disability caused by the hernia had been remedied. The operation had shown him that it was not such a dreadful procedure to open the thorax as was usually thought. In regard to the diagnosis of the hernia being congenital, he had arrived at that conclusion because the edges had been quite smooth. There had been no adhesions at the edges. Had it been the result of trauma, he would have expected more jaggedness and more adhesions. He had not been able to demonstrate a sac. He agreed with Dr. Monson that there should have been a sac if it were congenital. It was not impossible that he had destroyed it at the first operation. Or it might have been destroyed at the accident. In reply to Dr. Fiaschi he stated that the direct approach had given him ample exposure.

Blood Transfusion.

Dr. A. W. HOLMES à COURT and Dr. GEORGE BELL, O.B.E., read a conjoined paper on "Blood Transfusion in Civil Practice" (see page 427). They exhibited the apparatus employed.

Dr. A. H. TEBBUTT, D.S.O., gave a short demonstration on the methods of the practical testing of blood donors (see page 437).

Dr. R. I. FURBER, D.S.O., thanked all three speakers for their practical and valuable communications. He stated that in the treatment of hæmorrhage of the newborn it was not merely a question of replacing the blood lost. In these infants there was the absence of a special factor. It would seem that very little blood sufficed to bring about an arrest of the bleeding and a revival of the infant. The mechanism of the condition had not been fully worked out. He had thought it advisable in infants to inject the blood through the anterior fontanelle into the sinus. The mother's blood was not necessarily of the same group as the baby's blood. Blair Bell had pointed out that transfusion might be of value in eclampsia and in other forms of toxæmia of pregnancy. Dr. Holmes à Court had related the case of a woman who had had a concealed accidental hæmorrhage. The affair had been most dramatic. They had been watching the woman die. The restlessness had suddenly stopped and they had all felt sure that she had only seconds to live. The transfusion had been begun before sufficient blood had been collected because it had been a question of time. He also referred to the case of a woman with extreme anæmia and pregnancy. She had died. In regard to the method, he recommended the citrated blood procedure under ordinary conditions. If there were an expert team, the Kimpton method was undoubtedly the best, but it was not always possible to get such efficient workers as Drs. Holmes à Court and Bell. He thought that the citrate method should be taught to all students. It could be carried out without elaborate apparatus and was quite simple. At Rouen in the No. 1 Australian General Hospital they had used this method. The citrate did no harm to the recipient. He found that transfusion appealed especially to obstetricians. The question was raised whether blood lost into the abdomen should be returned into the mother's circulation. He thought that

there might be danger from the inclusion in the reinjected blood of fragments of placenta and of placental ferments.

Dr. A. J. GIBSON thanked the three speakers for their papers. They had collected the information at the Crown Street Hospital for Women in connexion with all forms of hæmorrhage in child-birth between 1915 and 1921. There had been two hundred and thirty-six cases of hæmorrhage during parturition and thirty-four of hæmorrhage resulting from ectopic gestation. Seven patients had died. Of these seven, only three had died of hæmorrhage. The other four had died of complications of the ectopic gestation, sepsis and pulmonary embolism. It would thus seem that there was no very great need for transfusion in obstetric practice. On the other hand he suggested that a patient who recovered from a large hæmorrhage, might be more prone to sepsis, on account of the severe anæmia resulting from the hæmorrhage. It was possible that transfusion would reduce this liability by shortening the convalescence. He asked Dr. Holmes à Court whether he had had any experience in this direction.

Dr. H. BULLOCK expressed his indebtedness to Drs. Holmes à Court, Bell and Tebbutt. He recognized the value of transfusion in restoring blood after very severe hæmorrhage. The citrate method seemed the most serviceable in that it was within the scope of all to use it. He referred to a patient suffering from typhoid fever who was in *extremis* after repeated large hæmorrhages and was still bleeding. Transfusion had been performed, the bleeding had ceased almost immediately and the patient had recovered. Dr. Gibson's remarks pointed to the infrequency of the real need for transfusion in obstetric practice and the same applied to civil surgery. In septic conditions transfusion was, he maintained, contra-indicated. Again in severe burns it was usually held that the symptoms were due to absorption of toxin and to shock rather than to loss of blood. It was necessary to differentiate between shock from hæmorrhage and shock from traumatism. He referred to the publication in *The Annals of Surgery* (Volume XXVIII.) of a death after transfusion when the donor had been found to be suitable. There was always some element of risk. It was further wise to realize that death from hæmorrhage was extremely rare. In these circumstances transfusion should not be frequently needed and it should be remembered that Drs. Bell and Holmes à Court had a very special knowledge of blood transfusion from exceptional experience at the war. He was doubtful whether it would be wise or necessary to transfuse a patient with the blood lost into the abdomen in ectopic gestation, as some writers had suggested.

Dr. T. W. LIPSCOMB asked whether it had been found that a person's blood changed in regard to its grouping, or whether the group characteristics were permanent throughout life. He also asked Dr. Holmes à Court to state the percentage strength of the citrate in solution of blood. Had any use been made of transfusion in hæmolytic jaundice of children?

Dr. R. GORDON CRAIG asked why it was thought to be necessary to perform the transfusion of blood in abdominal crises when hæmorrhage occurred. If the blood were left in the abdominal cavity, it would become absorbed. He wished to call attention to this popular fallacy. In ruptured tubal gestation, if the blood were left in the abdomen at the time of operation, the blanched, exsanguinated appearance would disappear in twenty-four hours, indicating clearly that the blood had been reabsorbed.

Dr. R. B. P. MONSON congratulated Drs. Holmes à Court, Bell and Tebbutt on their very admirable demonstration. Transfusion had been employed more frequently in France during recent times than in any other country, except perhaps the United States of America. In Great Britain transfusion was in its infancy. In the hospitals the operation was usually left to the resident medical officers to perform. It had not been put on a scientific basis and had not been referred to experts. In France M. Bécart was the recognized expert. Deputations had been sent from the United States of America to learn the details of

the methods he employed. He had adopted an easy and clean method of direct transfusion of whole blood. At the last Congress of Surgery a whole afternoon had been devoted to this subject and Bécart had been invited to give a demonstration. It was usually regarded as a minor operation, but much practice was required to obtain the best results. Eminent surgeons had often failed. Transfusion had been found of great use after gastrectomy for cancer of the stomach, especially when large portions of the organ were resected.

DR. H. C. E. DONOVAN asked whether any statistics existed showing the incidence of compatibility or incompatibility of the blood of mothers and of their new-born infants. The subcutaneous injection of the mother's whole blood had been carried out in the past with good results. Would not this obviate the risk associated with the introduction of incompatible blood into the infant's circulation?

DR. P. FIASCHI, O.B.E., said that he had seen Dr. Bell at work in France and had witnessed the success that had attended his transfusions. He, the speaker, had used the citrate method. The strength of citrate was 0.3%. He always boiled the apparatus in distilled water. Dr. Fiaschi spoke of Lewinsohn's apparatus and exhibited his own modification made with a thick-walled glass bottle. He warned his audience against apparatus including an Erlenmeyer flask. On one occasion they had collected blood in an Erlenmeyer flask and were just about to transfuse it, when the flask burst and seven hundred cubic centimetres of blood were wasted. He also referred to the embarrassing complication encountered when a donor had been placed on the table, but not one drop of blood could be collected from the vein. The man was an apparently healthy individual. He congratulated all three speakers on their useful and excellent papers.

DR. C. H. E. LAWES voiced the thanks of the members. He wished to ask a question or two before he called upon the speakers to reply. Could they offer any explanation for the statement that maternal blood might be incompatible with that of the new-born infant? Had they had any experience of the treatment of sepsis following accouchement by transfusion? It seemed to him that as time was often a factor in determining the issue, transfusion might tide the patient over a few days and thus give her a better chance of recovery.

DR. HOLMES A COURT replied briefly to several of the questions. In cases of *melana neonatorum* blood was transfused into the new-born baby primarily as a hæmostatic measure. It was held that the maternal blood supplied the constituent that was deficient in the baby's blood. He agreed that for ordinary work the citrate method was the best. It required less experience and was much simpler than the direct whole blood method. The simplest method was certainly the best. In reply to Dr. Gibson he said that he would expect that convalescence after hæmorrhage would be shortened by transfusion and in this way the chances of complete recovery would be enhanced. This had been their experience with wounded soldiers in regard to sepsis. In reply to Dr. Bullock he pointed out that he had been at pains to explain in his paper that transfusion was advocated for burns to replace blood previously removed. The patient was bled because it was held that the blood contained the toxic substance. Fresh blood was introduced to replace the blood removed. He regarded the re-infusion of lost blood as very dangerous. The blood would be likely to have undergone chemical changes. It would be much safer to transfuse fresh blood. In regard to the amount of citrate employed, he stated that they placed one gramme of citrate in fifty cubic centimetres of sterile water. Isotonic solutions contained 3.8%. The actual dilution to prevent coagulation was not a matter of great importance. He differed from the view expressed by Dr. Gordon Craig. Blood in the peritoneal cavity clotted sooner or later. In all probability the cells broke down and the resorption would be very slow. In cases of hæmorrhagic disease of the new born he had used the subcutaneous method in the past and the results had

been satisfactory. The intravenous injection or injection into the longitudinal sinus, however, yielded more rapid results. In practice he had found that any existing incompatibility between the maternal and fetal blood might be ignored. There was, however, no doubt that it might exist in certain instances. The improvement obtained after child-birth with threatened sepsis was largely dependent on the amount of blood lost. In pure sepsis the conditions were more complicated. The results were consequently not as evident.

DR. GEORGE BELL referred to the effect of transfusion in patients who had suffered from severe intra-peritoneal hæmorrhage. He thought that convalescence was smoother and shorter after hæmorrhage into the peritoneal cavity if transfusion had been carried out. This had been frequently observed in gun shot wounds of the abdomen. He agreed with Dr. Fiaschi in regard to the advantages of using the simplest methods for transfusion. Pemberton had described the simple apparatus employed at the Mayo Clinic. This was very good. In conclusion he thanked those who had allowed him to make use of the notes of their cases.

DR. A. H. TEBBUTT replied to the questions with regard to the grouping of maternal and fetal blood. The blood of the infant might belong to the mother's or the father's group or it might belong to another group. They were dealing with two dominant characters present in human corpuscles and the absence of these characters was recessive. These characters segregated in the germ cells and came together in the fertilized ovum. It was, therefore, a case of dihybridism and the results were in accord with Mendel's laws. It was, therefore, not possible to predict to what particular group an infant would belong, but if the parents' groups were known, it would be possible to say to what group or groups a legitimate infant could not belong.

Happ had shown that infants developed their blood characters at variable periods in infancy. The transfusion of blood in infants, therefore, required just as much precaution as in adults. The blood of the mother might be injected into the peritoneum, intra-muscularly or subcutaneously with safety, if it were desired to increase coagulability.

The blood grouping of individuals remained constant. He would suggest that some of the atypical groups that had been described, were of the nature of congenital abnormalities.

Dr. Tebbutt stated that the workers at the Pathological Department had been and were still responsible for all transfusions at the Royal Prince Alfred Hospital. They had had very gratifying results with the citrate method. The citrate disappeared very rapidly from the blood and apparently produced no ill-effects. He did not think that reactions were due to the citrate. He was strongly of opinion that transfusions should be employed as a prophylactic against sepsis, particularly in cases of *post partum* hæmorrhage. The obstetrician could not give any guarantee against sepsis in these cases, but he could vastly improve the general condition of the mother by transfusion.

UNVEILING OF WAR MEMORIAL.

THE War Memorial dedicated to the honour of members of the Victorian Branch of the British Medical Association who gave their lives in the service of the country, will be unveiled by His Excellency the Governor of Victoria on November 12, 1923. The service will take place in the museum of the new Department of Anatomy of the University of Melbourne at 2.30 in the afternoon. Permission has been granted for naval or military uniform to be worn by all members of the Royal Australian Navy and of the Australian Military Forces taking part. A Guard of Honour will be provided by the Melbourne University Rifles, by permission of the Commanding Officer, Lieutenant-Colonel E. Lind.

NOMINATIONS AND ELECTIONS.

THE undermentioned has been nominated for election as a member of the New South Wales Branch of the British Medical Association:

BRUCE, JAMES WHITSON KEMP, M.B., Ch.B., 1913 (Univ. Edinburgh), D.P.H., R.C.P.S., 1920 (Univ. Edinburgh), R.F.P.S., 1920 (Glasgow), Isla, Lord Street, Roseville.

THE undermentioned have been elected members of the New South Wales Branch of the British Medical Association:

BATES, DORIS CRYSTAL, M.B., Ch.M., 1923 (Univ. Sydney), Angel Road, Strathfield.
 CORNER, LANCELOT STEWART, M.B., Ch.M., 1922 (Univ. Sydney), Middle Head Road, Mosman.
 HUDSON, KINGSLEY DIXON, M.B., Ch.M., 1923 (Univ. Sydney), The Rectory, Hurstville.
 McDONALD, JOHN JOSEPH LAURENCE, L.R.C.P., L.R.C.S., 1921 (Edin.), L.R.F.P.S., 1921 (Glasgow), 28, Bayswater Road, Darlinghurst.
 OWEN, ALAN BERTIE SAMUEL, M.B., Ch.M., 1921 (Univ. Sydney), 58, Cambridge Street, Stanmore.
 PUCKEY, MARY COURTENAY, M.B., Ch.M., 1923 (Univ. Sydney), Seafeld, Wollongong.
 RATCLIFF, DAISY HUNTER, M.B., Ch.M., 1921 (Univ. Sydney), Wentworth Road, Vacluse.
 SCHWARTZ, ERNEST GEORGE, M.B., Ch.M., 1923 (Univ. Sydney), 22, Maher Street, Hurstville.
 SOLOMON, HERBERT JOHN, M.B., Ch.M., 1923 (Univ. Sydney), Urara, Darling Point Road, Darling Point.
 SHEPPARD, PHILIP ALBERT EDWARD, M.D., Harvard Univ., Mass., 1910; D.P.H., Lincoln Jefferson Univ., Ill., 1919 (Registered in N.S.W., 1923); c.o. C. A. Murray, Esq., "Kootra," Queen Street, Ashfield.

THE undermentioned has been elected a member of the Queensland Branch of the British Medical Association:

MACGREGOR, PETER NEWTON, M.B., Ch.M., 1923 (Univ. Sydney), Brisbane.

Congress Notes.

AUSTRALASIAN MEDICAL CONGRESS (BRITISH MEDICAL ASSOCIATION).

The Inaugural Proceedings.

THE first meeting of the Australasian Medical Congress (British Medical Association) will be held at Melbourne, commencing on Monday, November 12, 1923, under the presidency of Mr. G. A. Syme, F.R.C.S., who will deliver his presidential address in the Melbourne Town Hall on the evening of November 12, at 8.30 o'clock, in the presence of His Excellency the Governor-General. The Honorary Secretary is Dr. A. L. Kenny, 13, Collins Street, Melbourne, to whom all communications should be addressed.

The present meeting of the Australasian members of the British Medical Association is of more than ordinary importance for three reasons. In the first place it is the first medical congress to be held in Australasia entirely under the auspices of the British Medical Association. In the second place the Council of the British Medical Association in Great Britain has thought the occasion a sufficiently important one to desire official representation thereat. It has accordingly paid its Australasian mem-

bers the compliment of inducing Sir William Macewen, C.B., D.Sc., D.C.L., M.D., F.R.S., President of the Association for the year 1922-1923, to make the long journey to Australia as a mark of the indissolubility of the bond of medicine all the world over. Sir William is assured of a hearty welcome both for his own sake as also for those of our colleagues whom he represents. In the third place the present Congress is noteworthy because the dominant note of its scientific proceedings is to be preventive medicine.

The City of Melbourne requires no introduction to its prospective distinguished visitors and guests. It offers many attractions, particularly in November, to those desirous of combining business with pleasure. Old graduates of the University of Melbourne and others who have not recently visited the city, will find many changes and much to interest them. The stranger to Melbourne will find it well worth his while to drive along that magnificent boulevard, St. Kilda road, and if possible, to approach the city from that avenue as dusk is closing in. Continuing his journey north through the spacious streets which are Melbourne's pride, he will eventually reach the official home of the Congress—the Medical School of the University of Melbourne.

The Medical School.

The Melbourne Medical School, though young in years, has an admirable record of achievement behind it and under efficient leadership a noble future before it. Its official opening may probably be ascribed to March 3, 1862, when Dr. John Macadam, who had been appointed Lecturer on Chemistry, commenced his classes. A year later Professor G. B. Halford delivered his introductory lecture, as Professor of Anatomy, Physiology and Pathology, an all-embracing chair. He had a class of four. To commence a medical school with one professor and four students says much for the confident optimism of its founders, but the future has proved their foresight. Halford's old students will find an excellent portrait of him, presented by his son, in the south corridor of the new Anatomy Department. It is unnecessary to pursue the history of Melbourne's medical fledgling further because the curious may read it in the admirable history furnished by Sir Harry Allen in the jubilee book of the medical school. Suffice it to say that in the sixty years of its existence its medical students have increased from four to twice as many hundreds. Its chairs have not increased in like proportion and even today are only three. The buildings have, however, shown a more progressive spirit and for the moment culminate in the magnificent department in which the chief activities of Congress are to be centred, the new department of human anatomy provided by the generosity of the Government of Victoria. The building activities of a progressive medical school should never be regarded as a final achievement, because such is the progress of medical science that it knows no stop or bar and is continually demanding extended and altered premises for the prosecution of its study and advancement by research. It would, therefore, be idle to suppose that Melbourne can for ever remain content with the unequal proportions of the existing departments of its medical school. The younger generation must keep constantly before it the absolute necessity of medical school, hospital, staffs, students, clinicians and professors working together and alongside each other for the advancement of knowledge and the eradication of disease. Hence Melbourne cannot remain satisfied with current arrangements which preclude the realization of the noblest of ideals.

The New Department of Anatomy.

There will be few visitors to Congress who can fail to be impressed with the new Department of Anatomy. Its great size, the simplicity of its working arrangements, its magnificent, lofty and well-lit laboratories, its ample facilities for every branch of anatomical science, its splendid opportunities for under- and post-graduate study and research are indeed impressive. From the main south entrance there is afforded a striking vista of the distant

museum, culminating in the beautiful war memorial of the Victorian Branch of the British Medical Association. This perpetuates the memory of those of the Branch's members who laid down their lives on behalf of their King and colleagues. It is the work of Mr. Web Gilbert and is temporarily on loan to the University of Melbourne. Its unveiling will form a deeply impressive part of the opening ceremonies.

In the main entrance corridor, too, are the Department's own war and other memorials, supported by portraits of distinguished anatomists and other works of art of special interest to the medical profession. This corridor is a special and very striking feature of the Department. Along either side of it are numerous smaller rooms eventually to be devoted to the comfort and advantage of its students. Beyond these again are two magnificently proportioned dissecting rooms, each capable of accommodating three hundred students. The more westerly of the two gives access to the lecture theatre, where every care has been taken to provide for the comfort of all who are to use it. Provision is made for the installation of an epidiascope, ultra-rapid cinema projector for the display of moving pictures of special importance in the study of disease, lantern, telephones and a novel type of seat for the auditors. Here it is eventually hoped to give cinema displays of films of interest to the student and the profession, during the luncheon hour for the former and in the evening for the latter.

The main south corridor is intersected by a spacious east-west corridor some sixty metres long on the north side of which are research laboratories for neurology, physical anthropology, X-ray photography, comparative anatomy and operative surgery, with a finely proportioned museum, in which the opening ceremonial will take place at 2.30 p.m. on November 12, 1923.

On the *entresol* floor above the south corridor are the private and research rooms of the Professor and his staff, so designed as to give the necessary privacy and yet to command both dissecting rooms.

On the upper floor is one of the largest laboratories in the building, the whole floor with the necessary research rooms being devoted entirely to microscopical anatomy and embryology. From the flat roof above the visitor will obtain an extensive view over the University Grounds and greater Melbourne from the sea to the Great Divide.

With the evacuation of the building by Congress the work of removal from the present Anatomy Department to the new one will be commenced. Once it is accomplished the sister Departments of Physiology and Pathology will obtain some much needed extra accommodation. Portion of the ground floor will be devoted to the Medical School Library, the remainder to the Department of Pathology and probably the whole of the upper floor to physiology. Thus does the sixty years' growth of a medical school reflect the progress of humanity.

The Portrait Gallery.

There is another very unique feature of the Melbourne Medical School and that is the portrait gallery of every one of its graduates from the very first down to the lad of yesterday. It is certain that no other medical school can show the like. The collection is arranged in chronological order on the ground floors of the present Departments of Anatomy and Pathology and will well repay a visit by all old Melbourne men. The Anatomy Museum with its striking collection of sections of the human body, the Pathology Museum with its many thousands of specimens of disease, the Physiology Department with its array of instruments of clinical application and the Bacteriology Department which does so much for the State of Victoria, will certainly repay the time of the visitor, particularly if he be fortunate in meeting one of the heads of the department concerned as his guide, philosopher and friend.

The Congress itself will be preceded by an impressive and dignified ceremonial in the Museum of the New Department of Anatomy, to which every member of

Congress is invited and from which he should on no account be absent. The University of Melbourne, the Council of the Victorian Branch of the British Medical Association and the Executive Committee of the Australasian Medical Congress have united together for a triple purpose, the official opening of the Anatomy Department by Sir William Macewen, the unveiling of the war memorial of the Victorian Branch by His Excellency the Governor of Victoria and the reception by the President of Congress and Mrs. G. A. Syme. Every invited member will receive from the Chancellor, Vice-Chancellor and Council of the University of Melbourne a memento of the occasion in the form of a fully detailed printed programme and all who are so entitled, are requested to do honour to the occasion by appearing in either military or academic dress.

The War Memorial.

The official opening of the department will be undertaken by Sir William Macewen. Then follows what will probably prove to be the most mutely touching part of the proceedings. A guard of honour provided by returned men from the Melbourne University Rifles will move forward to take up position at the four corners of the war memorial, draped with the flags of England and Australia. Here they will stand with reversed arms while the President of the Congress calls upon the President of the Victorian Branch of the British Medical Association to speak to the occasion. He, in turn, will invite His Excellency the Governor to unveil the memorial. With all standing and in absolute silence the flags will fall slowly to the ground and reveal for all time and to the eternal honour and glory of those whose names are inscribed upon it, the monument which their colleagues have reared to their imperishable memory. To the touching strains of the "Last Post" the guard will present arms and the audience will stand to a silent attention.

"Dulce et decorum est pro patria mori!"

Thereafter will follow the official reception of the President of the Congress and Mrs. A. G. Syme.

Medico-Legal.

LILIAN COOPER FUND.

THE following additional subscriptions have been received to the fund to defray the expenses incurred by Dr. Lilian Cooper in a recent action at law (see THE MEDICAL JOURNAL OF AUSTRALIA, October 6, 1923, page 375):

Five Guineas.—Dr. Adela Porter, Dr. A. S. Roe, Dr. Kerr Scott.

Three Guineas.—Dr. A. J. Cameron, Dr. E. Culpin, Dr. A. J. MacDonald, Dr. J. B. McLean, Dr. C. E. Williams.

Two Guineas.—Dr. J. G. Avery, Dr. J. Espie Dods, Dr. Basil Hart, Dr. Ellen Kent Hughes, Dr. S. A. McDonnell, Dr. A. D. McKenzie, Dr. Arthur Murphy, Dr. A. C. Roper, Dr. W. H. Steel, Dr. Andrew Stewart, Dr. H. J. Stewart, Dr. V. N. B. Willis.

One Guinea.—Dr. B. Boyle Barrack, Dr. M. J. Gallagher, Dr. Luther Morris, Dr. Violet Plummer, Dr. B. G. Wilson.

Post-Graduate Work.

NOVEMBER COURSE IN MELBOURNE.

THE MELBOURNE PERMANENT COMMITTEE FOR POST-GRADUATE WORK is issuing the following syllabus of the next course which will be held during the fortnight November 19 to December 1, 1923.

The fee for the course is three guineas. The Committee ask those intending to join to forward their names and, in the case of members visiting Melbourne, their addresses,

in Melbourne during the course not later than October 31, 1923, to the Joint Honorary Secretaries, Melbourne Permanent Committee for Post Graduate Study, 12, Collins Street, Melbourne. The fee should be paid on entry. Entries later than October 31, 1923, will be recognized. Further information may be obtained from the Joint Honorary Secretaries.

Monday, November 19, 1923.

- 9.30 a.m.—Registration at Post-Graduate Office, Melbourne Hospital.
- 11.15 a.m.—MR. B. KILVINGTON: Demonstration of Surgical Cases, at the Melbourne Hospital.
- DR. J. F. WILKINSON: "The Treatment of Diabetes," at the Melbourne Hospital.
- 2.15 p.m.—DR. S. W. FERGUSON: "Infantile Diarrhoea and Dietetics," at the Children's Hospital.
- 3.30 p.m.—MR. W. KENT HUGHES: "Pathological Conditions of the Foot," at the Children's Hospital.

Tuesday, November 20, 1923.

- 9.30 a.m.—MR. H. B. DEVINE: "The Diagnosis of Surgical Dyspepsias," at Saint Vincent's Hospital.
- DR. A. N. MCARTHUR: "The Psychology of Pelvic Displacements," at St. Vincent's Hospital.
- 11.15 a.m.—DR. L. S. LATHAM: Pulmonary Cases, at Saint Vincent's Hospital.
- MR. C. G. SHAW: Demonstration of Surgical Cases.
- 2.15 p.m.—DR. L. HOOD: "Rheumatic Infections in Childhood," at the Children's Hospital.
- 3.30 p.m.—DR. C. W. B. LITTLEJOHN: "Circumcision," at the Children's Hospital.

Wednesday, November 21, 1923.

- 9.30 a.m.—DR. CAIRNS LLOYD: "Some Emergencies in Obstetric Practice," at the Women's Hospital.
- 11.15 a.m.—DR. R. FOWLER: Ante-Natal Cases, at the Women's Hospital.
- DR. R. N. WAWN: "Emergencies of Obstetric Practice," at the Women's Hospital.
- 2.15 p.m.—Cystoscopic Demonstrations at various hospitals. (Details to be announced.)

Thursday, November 22, 1923.

- 9.30 a.m.—MR. MURRAY MORTON: Surgical Cases in Wards, at Saint Vincent's Hospital.
- DR. A. E. ROWDEN WHITE: Medical In-Patient Cases, at Saint Vincent's Hospital.
- 11.15 a.m.—MR. JULIAN SMITH: "New Growths of Kidney and Bladder and their Diagnosis," at Saint Vincent's Hospital.
- DR. A. BRENNAN: "Laboratory Methods for the General Practitioner," at Saint Vincent's Hospital.
- 2.15 p.m.—DR. F. ANDREW, DR. C. M. EADIE AND DR. V. SCANTLEBURY: "Ear, Nose and Throat Diseases and Diagnosis in General Practice," at the Melbourne Hospital.

Friday, November 23, 1923.

- 9.30 a.m.—DR. S. V. SEWELL: "The Diagnosis of the Commoner Organic Nervous Lesions," at the Melbourne Hospital.
- MR. H. R. DEW: Demonstration of Surgical Cases, at the Melbourne Hospital.
- 11.15 a.m.—DR. H. TURNBULL: "Blood Pressure in Diagnosis," at the Melbourne Hospital.
- MR. T. E. VICTOR HURLEY, C.M.G.: "The Diagnosis and Treatment of Gall Stones," at the Melbourne Hospital.
- 2.15 p.m.—DR. R. M. DOWNES, C.M.G.: "Surgical Tuberculosis," at the Children's Hospital.
- 3.30 p.m.—DR. R. L. FORSYTH: "The Treatment of Pneumonia in Children," at the Children's Hospital.
- 8 p.m.—DR. A. E. MORRIS: "Infections of the Prostate," at the Venereal Disease Department of the Melbourne Hospital.

Saturday, November 24, 1923.

- 9.30 a.m.—MR. W. ALLAN HAILES, D.S.O.: Demonstration of Surgical Cases, at the Melbourne Hospital.
- DR. S. O. COWEN: "Gout," at the Melbourne Hospital.

Monday, November 26, 1923.

- 9.30 a.m.—DR. W. S. NEWTON: "Commoner Diseases of the Lungs," at the Alfred Hospital.
- MR. J. KENNEDY: "The Industrial Aspect of Knee and Ankle Injuries," at the Alfred Hospital.
- 11.15 a.m.—MR. R. C. BROWN: "Emergency Operations and After Treatment," at the Alfred Hospital.
- DR. J. P. MAJOR: "Serum and Vaccine Therapy," at the Alfred Hospital.
- 2.15 p.m.—DR. R. H. FETHERSTON: "Gynaecological Diagnosis," at the Melbourne Hospital.

Tuesday, November 27, 1923.

- 9.30 a.m.—DR. R. P. McMEekin: Demonstration of Cases, at the Melbourne Hospital.
- MR. J. GORDON: "When, Where and How to Amputate Limbs," at the Melbourne Hospital.
- 11.15 a.m.—DR. T. E. L. LAMBERT: Surgical Cases, at the Melbourne Hospital.
- DR. F. B. LAWTON, O.B.E.: Medical Cases, at the Melbourne Hospital.
- 2.15 p.m.—DR. R. R. WETTENHALL: Dermatological Cases, at the Melbourne Hospital.

Wednesday, November 28, 1923.

- 9.30 a.m.—DR. R. H. MORRISON: "Difficulties in Gynaecological Diagnosis," at the Women's Hospital.
- 11.15 a.m.—DR. R. CHAMBERS AND DR. A. WILSON: "Ante-Natal Treatment," at the Women's Hospital.
- 2.15 p.m.—DR. M. F. H. GAMBLE: "Arterio-Pathic Dementia and Testamentary Capacity," at the Alfred Hospital.
- 8 p.m.—DR. R. ST. C. STEUART: Demonstration, at the Venereal Diseases Department of the Alfred Hospital.

Thursday, November 29, 1923.

- 9.30.—DR. R. R. STAWELL: "Arterial Degeneration," at the Melbourne Hospital.
- MR. W. D. G. UPJOHN, O.B.E.: "Hepatic Suppuration," at the Melbourne Hospital.
- 11.15 a.m.—DR. KONRAD HILLER: "Diseases of the Blood," at the Melbourne Hospital.
- MR. B. T. ZWAR: "Surgical Conditions About the Neck," at the Melbourne Hospital.
- 2.15 p.m.—DR. F. V. SCHOLES: Demonstration of Cases of Infectious Diseases, at the Infectious Diseases Hospital.

Friday, November 30, 1923.

- 9.30 a.m.—MR. BALCOMBE QUICK: "Some Injuries to the Knee Joint," at the Alfred Hospital.
- DR. M. D. SILBERBERG: Cardiac Cases at the Alfred Hospital.
- 11.15 a.m.—MR. FAY MACLURE, O.B.E.: "The Uses of Rubber in Surgery," at the Alfred Hospital.
- DR. W. S. LAURIE: "Treatment of Typhoid Fever," at the Alfred Hospital.
- 2.15 p.m.—DR. H. DOUGLAS STEPHENS: "Common Surgical Affections of Children," at the Children's Hospital.
- 3.30 p.m.—DR. REGINALD WEBSTER: "Infectious Colitis," at the Children's Hospital.

Saturday, December 1, 1923.

- 9.30 a.m.—DR. C. KELLAWAY: "Bio-Chemistry in Medicine," at the Melbourne Hospital.

POST-GRADUATE COURSE IN ADELAIDE.

A COMMITTEE consisting of three members of the Faculty of Medicine of the University of Adelaide and three members of the Council of the South Australian Branch of the British Medical Association has been formed to arrange a post-graduate course in medicine and surgery.

It has been decided to hold the course in March, 1924, starting on Monday, March 2, and ending on Saturday, March 8, 1924. Lectures and demonstrations will be given at the Adelaide Hospital and at the University. The fee for the course will be five guineas. A programme will be published at a later date. Further details can be obtained from the Secretary, Post-Graduate Committee, The University, Adelaide.

Obituary.

PAUL WILHELM RUDOLPH BOELKE.

THE death of Dr. Paul Wilhelm Rudolph Boelke which was announced in our issue of October 6, 1923, was the occasion of much regret among many who trusted him as a medical practitioner and loved him as a man.

Paul Wilhelm Rudolph Boelke was born fifty-six years ago in Berlin. His father was financial adviser to the German Government at the time of Bismarck. His mother was cousin to Robert Koch. It is noteworthy that at the end of his life Paul Wilhelm Rudolph Boelke's work was concerned chiefly with tuberculosis. In his youth he suffered from acute rheumatism and this malady left its permanent mark on his endocardium. So definite was this that it cut him off from both military service and sporting activities.

After graduating in arts at the Berlin University he came to Australia and in 1888 entered the Medical School at the University of Sydney. He graduated in 1893 as bachelor of medicine and master of surgery. His first medical appointment was that of resident medical officer at the Royal Prince Alfred Hospital. His co-appointees were Dr. Vallack, Dr. Grafton Elliott Smith and William Frederick Litchfield.

Paul Wilhelm Rudolph Boelke was regarded by his fellow graduates and teachers as a man of ability and one whose enthusiasm for his work would carry him far. He married Miss Grace Fairley Robinson, a graduate in medicine of the University of Sydney, and started practice in Port Macquarie. Here he stayed for four years and then moved to Hunter's Hill. In the latter place he soon established himself and laid the foundations of a personal practice which extended later into the city. It was while resident in Hunter's Hill that he became honorary physician to the Anti-Tuberculosis Dispensary at its inception. Tuberculosis and its treatment were to him subjects of most absorbing importance. His concern for a sufferer from this disease was proverbial and he would spare no time or trouble in an effort to ameliorate the unhappy lot of such an individual. Devotion to his work was perhaps his most prominent characteristic, for he was ever prepared to spend and be spent in its interest. He was an exponent of the greatest of all gifts, charity.

At the outbreak of war Paul Wilhelm Rudolph Boelke was filled with a desire to serve Australia and the Empire. He volunteered for active service in 1915 and on account of his name and the place of his birth his offer was declined. He wished to go with many of the young men whom he had known and loved as children. That this desire was sincere, none who knew him, doubted. The anguish caused by the loss of many of his Australian boys while he himself was not allowed to help them either in service at home or abroad, left its mark on him in an indelible fashion. He was never quite the same afterwards. He worked on, however, with what energy his failing health allowed him. He became consulting physician to the Anti-Tuberculosis Dispensary and left most of the more active work to others. He refused to give up any more of his work and died in harness of acute dilatation of the heart.

The sympathy of the medical profession will be offered wholeheartedly to his widow.

Medical Appointments Vacant, etc..

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xviii.

AUSTIN HOSPITAL FOR INCURABLES, MELBOURNE: Assistant Medical Officer.

DEPARTMENT OF PUBLIC INSTRUCTION, NEW SOUTH WALES: Medical Officer.

ISIRI RD DISTRICT HOSPITAL, QUEENSLAND: Medical Officer.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C..

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30-34, Elizabeth Street, Sydney	Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmalm United Friendly Society's Dispensary Friendly Society Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phenix Mutual Provident Society
VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne	All Institutes or Medical Dispensaries Australian Prudential Association Proprietary, Limited Mutual National Provident Club National Provident Association
QUEENSLAND: Honorary Secretary, B. M. A. Building, Adelaide Street, Brisbane	Brisbane United Friendly Society Institute Stannary Hills Hospital
SOUTH AUSTRALIA: Honorary Secretary, 12, North Terrace, Adelaide	Contract Practice Appointments at Renmark Contract Practice Appointments in South Australia
WESTERN AUSTRALIA: Honorary Secretary, Saint George's Terrace, Perth	All Contract Practice Appointments in Western Australia
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington	Friendly Society Lodges, Wellington, New Zealand

Diary for the Month.

- Nov. 9.—New South Wales Branch, B.M.A.: Clinical Meeting.
- Nov. 9.—Queensland Branch, B.M.A.: Council.
- Nov. 9.—South Australian Branch, B.M.A.: Council.
- Nov. 13.—New South Wales Branch, B.M.A.: Ethics Committee.
- Nov. 14.—Victorian Branch, B.M.A.: Last Date for Nomination of Council; Election of Scrutineers.
- Nov. 14.—Western Australian Branch, B.M.A.: Council.
- Nov. 14.—Melbourne Paediatric Society.
- Nov. 20.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
- Nov. 20.—Illawarra Suburbs Medical Association, New South Wales.
- Nov. 21.—Victorian Branch, B.M.A.: Council; Nomination of Representative of Group on Council, London.
- Nov. 21.—Western Australian Branch, B.M.A.: Branch.
- Nov. 22.—Brisbane Hospital for Sick Children: Clinical Meeting.
- Nov. 23.—Queensland Branch, B.M.A.: Council.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, B.M.A. Building, 30-34, Elizabeth Street, Sydney. (Telephone: B. 4635.)

SUBSCRIPTION RATES.—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and book-sellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £3 for Australia and £2 5s. abroad per annum payable in advance.